

THE LARYNGOSCOPE.

VOL. VII.

ST. LOUIS, MO., OCTOBER, 1899.

No. 4.

ORIGINAL COMMUNICATIONS.

(Original communications are received with the understanding
that they are contributed exclusively to THE LARYNGOSCOPE.)

ENDOCRANIAL COMPLICATIONS OF OTIC ORIGIN.

TWO CASES OF CEREBRAL ABSCESS.*

BY DR. E. J. MOURE, BORDEAUX, FRANCE.

Translated by

STCLAIR THOMSON, M.D., LONDON, ENG.

Since otology has become more surgical we have from time to time the opportunity of observing ear complications developing in the cranial cavity. As this part of pathology still requires clearing up, we think it is the duty of all surgeons to report the facts they have the opportunity of observing, so as to collect the material wherewith to build up a solid edifice of knowledge on a series of observations. In this way we will be able to elucidate various cerebral complications originating from the ear. At the present moment we must confess they present numerous difficulties of diagnosis.

Indeed, except in the cases where lesions are situated in parts of the brain which react externally (motor or other centers), the symptoms are often so vague and so various—sometimes even so slight—that it is impossible for the clinician to make a positive diagnosis, and, above all, to settle the moment for surgical interference. In certain cases, indeed, particularly in extra-dural abscesses, we doubtless look on at large collections of pus forming round the brain without the patient experiencing any symptoms other than a slight malaise or intermittent headache, sometimes a little torpor following

* Paper read at the Sixth International Otological Congress, London, August, 1899.

on compression. But these different signs are far from being sufficient for warranting interference by the surgeon if he was not impelled by other circumstances, such as a chronic otorrhea or a fistulous tract, which led him during the operation to the extra-dural region.

In another series of cases the patient manifests a certain number of symptoms which indicate that the encephalon is affected in some part. When, at the operation, starting from the ear trouble, we arrive at the dura mater, and find at this level a collection of pus, it is customary to there limit our interference, being convinced that what we have found is sufficient to explain the symptoms exhibited by the patient before the operation. Very often, then, after the opening of this extra-dural abscess, the operator sees that the cerebral phenomena continue or even become worse; his intervention has not been sufficient, and it is not always advisable for him to resume it, especially when he has to do with private patients. However, if we have no distinct signs of localization, is it logical to deliberately open the meninges and puncture the brain, thus exposing the patient to an infection which did not exist beforehand—particularly when we have found a considerable extra-dural lesion in connection with the aural lesion? For if the symptoms continue after an operation of this kind it might be asked, unless one finds pus from the cerebral puncture, if the complications existed beforehand or if they had not been the sequence of a surgical infection? The following case is interesting from this point of view. The first operation only relieved the patient for a short time, then the phenomena continued to be more marked, and even more limited, showing that one had to do undoubtedly with an encephalitic lesion. The family refused a second operation.

Case I. Reported by Dr. A. Brindel (First Assistant in the Otological Clinic at Bordeaux). Cerebral Abscess Consecutive on a Chronic Otorrhea, Complicated with Influenza. Stacke's Operation. Extra-Dural Abscess. Very Marked Improvement. Five Days Afterwards Fresh Cerebral Symptoms, Causing Death in Forty-eight Hours. Refusal by the Family of a Second Operation.—M. M., age fifty, has an old-standing suppuration in the left ear. Influenza one month previously. For twelve or fourteen days acute, sharp pain in the mastoid region. Cerebral symptoms for four days—delirium, fever without remission up to 40°C , and intense headache on the side affected. For two days the patient is half comatose, with profuse perspirations. Pressure on the mastoid at the level of the antrum is very painful. Unilateral facial paralysis on the side affected.

Patient was seen for the first time on November 5th. Operation was decided upon at once, but could not be performed before November 7th.

Operation, November 7, 1898.—Incision in the retro-auricular furrow, petro-squamosal suture very marked. The bony meatus was enlarged in its superior half by means of the gouge and mallet. The first layers of tissue did not appear hard, but considerable hardness in the apophysis. With one blow of the gouge the external surface of the lateral sinus was exposed. It was not more than one centimeter and a half distant from the back of the meatus. In one of the mastoid cells on the inferior walls of the mastoid opening pus was found. The antrum was thoroughly exposed. It was small, placed high up, and it, as well as the tympanum and the tympano-mastoid canal, was full of caseous and fungating material. *The roof of the antrum and of the tympanum no longer exist.* The bony wall was destroyed to a considerable extent. *Pus and fungating material were found on the meninges.* After curetting, they appeared to be still resistant, and the operation was not carried further. Careful curetting of the large cavity formed by the antrum, the epiphysis, the tympanum and the tympano-mastoid canal. The membranous meatus was slit in its whole length at its center. The inferior flap thus formed was fixed by a cat-gut suture. The upper flap was entirely removed, the retro-auricular wound was immediately closed and the meatus plugged with iodoform gauze.

November 7th, Evening.—Intelligence commenced to return. Temperature 38°C.

November 7th-10th.—Intelligence returned; no fever.

November 10th.—The patient begins to take an interest in his own condition. No headache. Facial paralysis continues. General condition good. Dressing renewed. No pus.

November 11th.—Patient feels well. Got up and commenced to eat with appetite.

November 12th.—Suddenly during the night of the 11th to the 12th the delirium appeared again and also the coma. Patient frequently carried his left hand to his head over the dressing. He does not answer any question. In the evening he is still comatose; respiration 31, pulse 100, temperature 39.2°. *The right arm is distinctly and strongly paralytic. Incontinence of urine.* Wound dressed. No pus. Respiration stertorous.

November 13th, 1 p. m.—Same condition. Right arm completely paralyzed. Uneasy respirations, 51. Pulse 147. Coma. The pupils react a little to light. Patient evidently suffers from his head.

A second operation was proposed, which would have consisted of craniectomy at the level of the temporal lobe and one or more exploratory punctures of the brain, for we thought that we had to do with all the symptoms of a cerebral abscess.

The family, though very intelligent, refused the second operation, although warned even before the first operation that it might be necessary.

The patient died on November 14, 1898. No post-mortem.

I might compare with this case another which I have already published in which the extra-dural lesion (an abscess) was emptied, but improvement did not follow, and I did not have the opportunity of operating a second time, as the patient died after forty-eight hours from an enormous abscess in the brain, which I discovered at the post-mortem.

The duty of a surgeon in cases of intra-cranial complications (phlebitis excepted) may, however, be sometimes very difficult to determine. Indeed, as I have already remarked, when an affection of this character is suspected and an operation performed one has to settle whether in the absence of all symptoms of localized cerebral trouble, and *sometimes even when they are present*, one has to settle, I repeat, whether the existence of an extra-dural collection or of a meningeal origin easily diagnosed ought to stay the surgeon's hand, or if, on the contrary, he ought, in spite of the existence of these extra-dural lesions, to push his operation still further. It seems logical to admit that, as a rule, it is the second hypothesis that a wise surgeon ought to adopt, being prepared to continue his operation twenty-four or forty-eight hours afterwards if the symptoms do not amend as they should do if only a single lesion existed.

It appears to me that our rule of action ought to be the same both in hospital and private practice, and if in the latter the patient's friends raise difficulties to a second operation, the surgeon clears his responsibility and his conscience by acting as I have indicated.

On the other hand, if the lesions found external to the dura mater are not sufficient to explain the symptoms, one must not hesitate to proceed at once to the brain to detect the cause. Sometimes this will be discoverable, but in other cases, on the contrary, in spite of the radical intervention, the symptoms will continue and end in death. It is particularly in the cases of abscess of the brain, abscess without limiting walls, that the treatment becomes difficult of application and that the opening of the purulent collection is not sufficient to effect a cure. It is a case of this character which I am now able to report. The case is interesting from several points of view. First of all

because of the symptoms which enabled us to make a clear diagnosis of cerebral abscess, and, secondly, because of the unaccustomed development which took place during the operation.

Observation II. Reported by Dr. A. Brindel (Chief Assistant in the Otological Clinic at Bordeaux). Abscess of the Brain Consequent on Acute Suppurative Otitis Media with Mastoiditis. Stacke's Operation. Puncture of the Brain. Spontaneous Evacuation of the Abscess into the Wound Ten Days after Operation. Temporary Improvement. Death on the 22d Day by Hemorrhage into the Site of the Abscess with Flooding of the Ventricle. Autopsy.

January 2, 1899.—G. L., age thirty-six, grocer, contracted a cold seventeen days previously. Took to bed with fever. Next day complained of a violent pain in the head and in the left ear. Two days afterwards discharge from the ear and relief of the earache. (Consequently this occurred fifteen days previously.)

On the sixth or seventh day after the commencement of the disease fresh earache and intense headache which have not left the patient. From this period (December 22, 1898) insomnia and loss of appetite. On December 31, 1898, commencement of intellectual phenomena; confusion of ideas; vertigo.

On the left side suppuration; small perforation in the center of the membrane; pain on pressure on the left apophysis, which is slightly raised *en masse*. No pain on percussing the cranium.

Hebetude; debility; loss of appetite; slight compression. Intense frontal headache; slight vertigo; no vomiting. Pulse 80. No convulsion. Temperature normal, 37°C.

Homonomous Hemianopsia right. Pupils equal; the pupil reacts less feebly. The papilla seems congested, and generally seems rosy. Visual field retracted. Reflexes normal; sensibility normal.

Examination by Professor Pitres.—Intellectual phenomena: word blindness; aphasia; word amnesia. On showing the patient a match box he could neither pronounce its name nor say what purpose it served. He could not name a key nor a pen, but said "It is for shutting," or "It is for writing." He recognizes a watch and knows the hour. He cannot read any writing.

He recognizes the figures 0, 8, 5. He recognizes the letter S, but not the letters T, I, M, Q, F. He recognizes the letters G, I, L, letters which go to form his name, but does not recognize his name Gilis, though formed by the letters which he had recognized separately. He succeeds, however, in reading his own name when it is formed with the same identical letters.

His repetition of words is perfect.

He writes from dictation. One gives him the word Bordeaux and then Paris. After having written the first four letters of each of these nouns he stops and it appears impossible for him to continue although we dictate the letters to him. He writes figures and the numbers 8, 25, 1899.

Spontaneous Writing.—The patient writes his own name without hesitation, but on two occasions when he wished to write Bordeaux he stopped at the fourth letter.

Writing from Copy.—When one writes out the word Bordeaux he copies it correctly.

Examination of Urine.—1033. Slight trace of albumen. Urea 27.50. Glucose 28.45, acid, phosphoric, biliary pigments.

Diagnosis.—Cerebral abscess situated at the level of the curved convolution (*pli courbe*). (Such was the diagnosis of Professor Pitres.)

The apophysis was, as remarked, slightly raised *en masse* and tender to pressure. There was a small perforation in the center of the membrane.

Operation, January 4, 1899.—Retro-auricular incision. Enlargement of the bony canal in its superior half with gouge and mallet. On the way some small cells were discovered. The bone was congested *en masse*; slightly hard; the mastoid is cellular. The antrum is put in communication with the tympanic cavity and the meatus (operation of Stacke). The roof of the antrum is necrosed; a small sequestrum separates the cavity from the encephalon. At two and one-half centimeters above and a little behind the antral opening but continuous with it, in the temporal bone, an opening is made exposing the meningeal surface in an area of about three centimeters in diameter. A crucial incision was made into the dura mater, the pia mater was incised. The point of a bistoury about three c.m. is plunged backward and a little upward into the cerebral substance, in the direction of the occipital lobe. This puncture is immediately followed by a considerable jet of venous blood as though one had made a large opening into a sinus. The blood is arrested by compression with sterilized gauze, but as it recurred at once on removing the compression we were obliged to discontinue the operation, and not to make new punctures either into the temporal lobe or into the sphenoidal lobe as we had intended. The cerebral wound was plugged, and a strip of iodoform gauze was packed into the atticomastoid cavity.

January 9, 1899.—Since the operation general condition is good, no complaint. Patient reads with pleasure, but he remains somewhat paraphasic. He does not recognize a clock.

The general sensibility is almost abolished on the right side of the body—*i. e.*, on the side opposed to the lesion. The testicular reflex does not exist on the right side. The right arm is distinctly paretic; the plug was removed. No bleeding; pulsation of the brain normal. The skin is sutured, but a small piece of iodoform gauze was left in the brain.

January 10, 1899.—Same condition except that the sensibility has returned to the right side.

January 13, 1899.—General condition good. No fever. Good appetite. Tongue dirty, but moist. The urine was again analyzed; no sugar, trace of albumen. Sp. gr., 1021.

January 15th.—The dressing was found inundated with pus which had flowed even as far as the shoulders of the patient during the night between the 14th and the 15th. The wound was healthy, the pus distinctly coming from the brain in the upper part of the incision (temporal lobe). More marked hemianopsia. The site of the cerebral abscess which had emptied itself is drained by means of a rubber drainage tube.

Since the operation the temperature has never reached $37^{\circ}\text{C}.$; on the morning of January 11th it was $35.2^{\circ}\text{C}.$

January 15th to 24th.—Patient manifestly better. Is always paraphasic, but he speaks and interests himself in everything. Knows his name; counts up to twenty; eats and gets stronger. He is dressed every other day.

January 24th.—Patient commences to complain of his dressing pressing his head. He becomes sad and depressed.

January 25th.—Dressing renewed. Large cerebral hernia. Patient bad color; tongue dirty. Answers questions; counts up to nineteen; paraphasia increased.

January 26th.—Same condition in the morning. Seven o'clock in the evening he becomes comatose and dies at 10 o'clock. This day the temperature got up to $38^{\circ}\text{C}.$

Post-mortem on January 27th.—There was found at the level of the curved convolution (*pli courbe*) a large collection of necrosing encephalitis (diffused abscess) in the interior of which was found a large black blood clot which extended as far as the interior of the ventricle. Above the fissure of Sylvius, and at a point corresponding to the cavity of the abscess; very superficial at this point, the pia mater is necrosed in a small situation and gives passage to pus. The temporo-sphenoidal lobes formed the hernia in the cranial wound and were affected with diffuse encephalitis.

In brief, the patient died of hemorrhage into the site of a cerebral abscess, with flooding of the ventricle.

In this case, in spite of the compression of the brain by a plug of iodoform gauze introduced into its interior, the symptoms of compression were very slightly marked the patient would probably have been cured once his abscess was opened if we had had to do with a veritable encysted abscess, instead of a collection of diffuse purulent material. As usually it is impossible to say when a cerebral abscess is opened if one has to do with an encysted abscess or with an abscess situated in the cerebral mass, without limiting membrane, we should observe certain rules dictated by prudence. One is, in my opinion, that one ought never to make injections into the interior of the cerebral cavity, for in my case particularly an injection would not have failed to have produced what was done later on by the purulent collection itself—*i. e.*, to penetrate the ventricles and bring about sudden death.

Perhaps it might be possible to recognize the abscesses which have a limiting wall on examining the pus which escapes by the orifice of the drainage tube or the cannula placed in the brain. In my case, indeed, it was absolutely evident that the pus was mixed with sphacelated cerebral material, which made me fear from the very beginning a fatal issue in spite of the opening of the abscess.

From another point it is interesting to note the considerable cerebral hernias which are not revealed by any distinct trouble. Indeed one meets with a fair number of cases in which we have been able to resect the hernial portion without the patient feeling any effect afterwards. The book of Dr. Mignon contains a typical and very interesting example of this.

It is also useful to establish what ought to be the line of conduct of a surgeon in presence of cerebral hernias, which are often fairly voluminous. Should he try to reduce them, which is not easy; should he on the contrary help their elimination by ligaturing their base or resecting them with the knife or the thermo-cautery? Such are the interesting problems which must be resolved, for they are in the highest degree important to the aural surgeon who finds himself in face of cranial complications consecutive on suppurative otitis.

ADENO-SARCOMA OF THE NASAL SEPTUM.*

BY ALBERT RUFUS BAKER, M.D., CLEVELAND, OHIO.

Professor of Diseases of the Eye, Ear and Throat, in the Cleveland College of Physicians and Surgeons; Oculist and Aurist to the Cleveland General, St. Alexis and City Hospitals.

Miss E. G. D., age forty-nine years, referred for examination and treatment by Dr. Maynard, in January, 1896, with the history of a tumor of the cartilaginous septum of the nose. First observed one year previously. I found a somewhat flattened tumor about the size of a hazel nut covering nearly the entire surface of the cartilaginous septum. Bleeding frequently but not profusely; no pain; principal complaint that of obstructed nasal respiration. Also suffers from deafness and slight attacks of earache on the same side.

A portion of the tumor was removed with the cold snare and submitted to Dr. H. W. Rogers for microscopical examination. He pronounced it non-malignant adenomata.

On January 15, 1896, the patient entered the Cleveland General Hospital and I removed the tumor with a sharp curette and cauterized the base thoroughly with the electric cautery. Soon after the operation the patient developed a purulent otitis media which persisted rather obstinately but finally yielded to treatment. Patient comes from a tuberculous family. When about twenty years of age, suffered from a large abscess under the tongue, which opened spontaneously, and for thirty years there has been a constant discharge from a fistula, the sinus apparently leading into the sublingual gland. The pus is cream-colored, quite abundant, but no odor.

In February, 1898, the patient returned with a recurrence of the tumor; first noticed less than a month previously; growing rapidly and presenting microscopically much the same appearance as before. Not the same tendency to bleed. Considerably larger and extending back on the bony septum almost to the naso-pharynx. Another specimen was secured for microscopical examination and submitted to Dr. Rogers, who said the case was now one of typical adeno-sarcoma—a diagnosis confirmed by Dr. Ohlmacher and others who have examined the slides.

On February 28, 1898, a radical operation was undertaken under ether narcosis. The Rouge operation was made—a favorite one of mine

*Read before the Section of Laryngology of the American Medical Association, Columbus Meeting, 1899.

in the pre-cocaine days of rhinology, and one that I believe should be undertaken more frequently even now. The absence of deformity and the ease with which all parts of the nasal fossæ can be reached make it an ideal operation. I have never attempted it under cocaine anesthesia, but I believe it could be thus done, painlessly and satisfactorily. The operation, as you are well aware, simply consists in making an incision beneath the upper lip and turning the lip and nose up over the forehead, thus giving access to the nasal fossæ. During the early years of my practice I made the operation several times while under a general anesthetic, and the subsequent pain and discomfort was so slight that the patient was never aware but that the operation had been made through the anterior or posterior nares.

I recall a case of a medical gentleman, recently deceased, who sacrificed himself upon the altar of science annually by going before a class of medical students and permitting the professor of surgery to pull off one of the many nasal polypi from which he suffered. I made the Rouge operation upon him while under general anesthesia, without his knowledge, and thus by a radical operation spoiled one of the professor's most constant and spectacular clinics.

In the case of Miss E. G. D. nearly the entire septum was removed; the tumor presenting a flattened, elongated appearance, about the size of my two thumbs, and in no wise pedunculated, covering almost the entire cartilaginous as well as the bony septum, but at no point did the tumor extend forward to the junction of the skin with the mucous membrane or upon the floor or roof of the nasal fossæ.

The patient made a much more rapid recovery than from the previous operation, with no deformity. She was last seen on April 15, 1899. At that time—about fourteen months since the last operation—there was no recurrence.

I have reported this case because of the rarity and as a slight contribution to the mooted question as to whether a benign adenous ever becomes transformed into a malignant one. I might say that the entire tumor after both operations was submitted to several microscopists, all of whom concurred in pronouncing the first a benign and the last a malignant tumor, several of whom knew nothing of the history of the case. The specimens were used for demonstration in the pathological laboratory of the Cleveland College of Physicians and Surgeons, but I still have the original slide in my possession and intended to present them to the Section, but in my haste to catch the train I forgot them.

SARCOMA OF THE NASAL PASSAGES.*

BY H. V. WÜRDEMAN, M.D., MILWAUKEE.

Nearly nine years before a woman patient, aged forty-seven, in general good health, but at that time passing through the menopause, consulted the author for nasal bleeding and stoppage of the nose. A few months before a number of polypi had been forcibly removed "by twisting out with forceps" by another physician. The tumors had recurred and while the bleeding was not alarming, it occurred upon exertion. Examination showed one nasal passage totally stopped by polypoid growths and the other partially occluded. A large polypocystic growth containing about ten grammes of pus, the base of which was attached to the sphenoidal plate of the ethmoid, was removed from the left nasal passage by snaring. The next day three fibrocystic growths, about the size of a walnut, were removed from the same side by the cold snare, the attachments being between the middle and superior turbinal bodies. The snare was tightened very slowly, the operation taking fully a half hour. It was, however, followed by considerable bleeding, which was controlled by plugging. The plug was removed and replaced the next day, and the tendency towards bleeding was later controlled by galvano-cauterization. Two weeks afterwards mucous polypi were removed from the right side; one week later a large solid tumor and several small ones were removed from the left. Recurrence of the hard tumors took place three weeks later, being removed together with the superior turbinal bone; considerable hemorrhage occurring which was controlled by tampon and ergot. Galvano-cautery was afterwards applied to the origin of the growths.

Patient has been seen several times a year to date of writing, but since 1891 there has been no recurrence of the neoplasms of the nose. The condition of the nose now is that of slight atrophic catarrh, the patient being kept comfortable by alkaline washes and oil sprays which are used at home. The examination of the specimen removed from the nose was made some months after the original operations and the slides have been submitted for inspection to a number of pathologists since that time, the growth being pronounced by nearly all of them to be small round-celled sarcoma.

* Author's Abstract.—Read before the Section of Otology and Laryngology, American Medical Association, fiftieth annual meeting, Columbus, Ohio, June 6, 1899.

The author remarks upon the tendency for benign neoplasms, particularly those of the papillomatous variety, to be incited into pernicious activity and transformed into malignant growths by trauma, such as cauterizations or rough surgical procedures, for instance; forceps operations in removal of mucous polypi. We can seldom absolutely discriminate by the microscope between papilloma and carcinoma, and it is likewise true of some of the sarcomata, notably the round-celled sarcoma occurring in lymphoid structures.

In this case, from the clinical symptoms of bleeding and pain in the head, the history of a rough operation in the nose, the unusual bleeding following the removal of the growths by the cold wire snare, and from the microscopic appearance of the tumor there seems to be no doubt but what we may properly classify it under the form of lympho-sarcoma and say that the disease was originally lymphadenoma, which was lighted up into pernicious action by trauma and transformed into the malignant growth.

Aside from the pathologic interest of this case, the fact of a permanent recovery from nasal sarcoma is of considerable clinical import, showing that these cases may sometimes be cured if radical removal of the growths is done sufficiently early.

A REMARKABLE ACCIDENT.

BY J. W. BIRD, M.D., STEVENS POINT, WIS.

Mr. H., age twenty-four, while running across the yard in the dark, ran into a wire clothes line.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.

The wire drew through his mouth and caught in his teeth, throwing him to the ground and tearing out nearly all of the left superior maxillary with eight teeth on it.

The dimensions of the bone are as follows: external surface, two and one-half inches; height, one and five-eighths inches, and depth, one inch.

The left half of the roof of the mouth, the floor and outer wall of the nasal fossa were removed with the bone.

The Schneiderian membrane and periosteum, lining the fossa, were not ruptured, so the nasal passage is normal.

The line of fracture was through the antrum of Highmore, and at the lower margin of the infra-orbital foramen.

The unusual feature of the case is: that there is no perceptible scar or deformity of the face.

This serves to illustrate how extensive injuries about the nose and throat might heal and leave no deformity.

SOME CONSEQUENCES OF SINGERS' NODES.

BY PROF. DR. A. ROSENBERG, BERLIN.

This name, derived from Stork, of the small, barely pin-head sized, white or at times reddish, more or less circumscribed nodes, which occur not rarely bilaterally on symmetrical points on or directly under the edge of the vocal cord, is not applicable in so far as these nodes may be observed in persons who do not sing or speak professionally, and no analogy exists for taking size alone as a basis for the classification of tumors. They are characterized, however, in their relation to other tumors of the larynx by their small size, with no increase of same even after an existence of many years, and until a thorough, systematic, histological examination of these small tumors permits of an exact classification, we must retain this provisional nomenclature, cognizant of its present inadequacy. The data as to the finer construction of these small tumors are as yet insufficient. It is certain, however, that a considerable proportion of these tumors have some relation, as Fränkel has been first to point out ten years ago, to a gland of the vocal cord described by him, which sends its duct to open in the region of the pars libera directly under the edge of the vocal cord. The existence of this gland has been proven by repeated histological examinations (Chiari, Alexander and others) and observation frequently shows an exit of secretion from the small tumor during phonation.

A short time ago I had occasion to observe clearly in a young man, two days after a drinking frolic, a nearly pin-head sized node of reddish color, located about the middle and under the edge of the right vocal cord. He had used his voice excessively, which had produced hoarseness. This node subsided considerably through resting the voice—in proof of the frequently expressed opinion, that excessive use of voice may cause these small tumors. They are called into existence by an obstruction of the mouth of the duct, which may result in a swelling of the gland or a dilation of the duct.

These nodes may persist indefinitely in a considerable proportion of cases; still in a great number, as above cited, restitution wholly or in part may occur. Individual conditions excepted, the former result will principally prevail, if the patient, especially in

the beginning, does not remain sufficiently quiet; this is oftener the case, as the disturbance of the voice need not be noticeable. This observation may be proven by the fact that at times singers can sing clear and well with these nodes. Non-subsistence of these tumors will occur if hyperplasia of the epithelium of the surface has taken place through friction of the tumor on the edge of the other vocal cord, for instance, or through other excitants, or if an increase of connective tissue has taken place.

I have observed in several lady singers a further alteration of the vocal cord arising from these nodes in consequence of insufficient or entire lack of rest of the organ. This alteration I can not look upon as extraordinary, for I have seen it too often, but must regard it as a type which I had observed at times in former years without being clear in my mind as to its nature. I believe I have been able to observe in a few recent cases the etiology of this alteration. In one case I could observe the increase in the size of the node after each use of the voice, its reduction in size after resting, enabling me to control by the laryngoscopic condition her obedience to my instructions as to resting. Pressing circumstances compelled the patient at one time to sing about a fortnight regularly, and with exertion, and I could see how the little circumscribed tumor gradually subsided, giving place to a more diffuse broadening of the vocal cord in the entire region of the *pars libera*; which gave the edge of the vocal cord a shallow, convex form. The vocal cord retained its white color, but the edge appeared less sharp, rather somewhat thickened and rounder. The enlargement, originally confined to the mouth of Fränkel's gland, now occupied the entire non-cartilaginous portion of the vocal cord. After prolonged rest and local astringent medication the normal condition was restored. The covered, easily fatigued and badly sounding voice regained gradually its brilliancy, power and freshness.

In another case of a professional lady singer the same laryngoscopic picture could be observed. In this patient, who paid no heed to my pressing admonitions to rest her vocal organ, the broadening of the vocal cord increased within a few weeks to such an extent that the edge of the vocal cord had, by its own increase in volume, progressed even more toward the median line than in the previous case, and a relatively greater amount of impairment of the voice resulted. When the patient attempted to phonate, a closure of the glottis could be seen in its anterior part. The resistance which the healthy vocal cord met from the curved prominence of its fellow (in its *pars libera*) prevented in the posterior portion a normal

glottis phonatoria, but caused it to gape with a triangular slit, and principally at the expense of the diseased side. When both vocal cords, as it also happens, are affected, the resulting slit is naturally in the form of a more or less perfect rectangular triangle.

We have seen that the first phase in the development of this alteration is the singer's nodule, which is itself caused, at least in a large proportion of cases, by the occlusion of the mouth of the previously mentioned gland. The persistence of the existing cause (lack of rest, viz., excessive use of voice) may cause an increasing dilatation of the gland duct through increased secretion, or, which is more likely, the gland itself may enlarge through retention of secretion, or a hyperplasia may be incited. Perhaps an occasionally inflammatory process may develop, which may progress into the adjoining structures and give rise to inflammatory neoplasm or hyperplasia. It is in this way that I connect these different manifestations.

This conception is not rendered less probable by the observation of a third case, which showed at the most prominent part of the convexity of both vocal cords a so-called singer's nodule. It would rather appear that this combination especially points to the relation above mentioned. The explanation in this case would be, firstly, a swelling of the gland, and, as a consequence, a dilatation of the vocal cord, producing a diffuse arching outward of the edge of the vocal cord, which through altered location of the mouth of the duct, has caused a nipple-shaped enlargement.

In consequence of the altered shape of one or both vocal cords, the thickening of their edge, their changed vibrating capacity and the inefficient closure of the glottis, the patient's voice sounds muffled and no longer has its former timbre; the patients complain of early fatigue (from phonetic waste of air) and of uncertainty in taking a note, which they usually cannot sustain.

This alteration of the form of the vocal cords has not yet, as far as I am aware, been described, and, as I believe I have been able to explain its causation, I thought it advisable to call this condition to the attention of my colleagues.

AN INTERESTING CASE OF FATAL DYSPNEA IN A CHILD.

BY SAMUEL E. ALLEN, M.D., CINCINNATI, OHIO.

Laryngologist and Aurist to the Cincinnati Hospital.

The following case is reported both on account of its uniqueness and the difficulty in making the diagnosis during life:

Carl B., age four years, a big, fat, healthy-looking country boy, living on a farm fifteen miles from the city, was admitted to the Cincinnati Hospital, May 17, 1899, for the relief of severe attacks of dyspnea, which had come on during the last month, and the day before were so severe that his physician thought he must asphyxiate. The child's breathing was difficult and noisy, more noisy than difficult at the time of examination, there being no sinking in of the clavicular spaces. Expiration seemed more difficult than inspiration. There was a peculiar, moist, noisy, rattling noise, evidently arising in larynx or trachea. Coughing was started on the slightest irritation. Otherwise the boy was the picture of health. The history obtained from the father was that the boy had taken cold three or four weeks previous and since then had had croupy attacks, coughing and difficulty of breathing, especially when excited or when awakening from sleep. Otherwise he was perfectly healthy, appetite good, no difficulty in swallowing, bowels regular, etc. When sound asleep or lying perfectly quiet there had been very little dyspnea. The voice had never been affected. Temperature, 99; pulse, 128. A laryngoscopic examination, which was very successful after a few attempts, showed the cords and upper portion of the larynx to be perfectly free, nor could anything be detected below the cords. Movements of the cords normal. Under chloroform the same noisy respiration. An esophageal bougie passed into the stomach without meeting any obstruction. An examination of the lungs was difficult on account of the noise in trachea. Respirations, 24 to 30. Patient was placed under the charge of a special nurse, and most carefully watched for nine days. During this time, while there were no dangerous attacks, the noisy breathing, cough and dyspnea remained about the same, being most marked when boy was excited and on awakening. As soon as the physician appeared he would begin to cry and cough and the breathing became labored and noisy. When sound asleep the patient seemed to breathe with almost perfect ease. The diagnosis of a

foreign body in the trachea became more and more the only plausible explanation of the trouble, although there was absolutely no history tending to confirm such an opinion.

On May 26, 1899, an incision into trachea was made under chloroform, with the expectation of encountering some sort of foreign body. The trachea contained considerable thick mucus, but both forceps and probe failed to bring to light any obstructing body. A probe could easily be passed upward through larynx and downward to bifurcation and into large tubes. A tracheotomy tube was inserted and the boy taken back to the ward. The attacks of coughing and dyspnea continued as before, possibly a little less pronounced. The tube was removed on the fifth day and the wound allowed to heal. The patient remained in the hospital until June 8th, when he was discharged and taken to his country home. His condition was about as it was on his entrance. A month later I was informed by his physician that the boy had had during the night an attack of dyspnea and had died in a few moments.

A post-mortem examination was made the next day, at which I found the following conditions:

The larynx, trachea and lungs were removed and examined. Lungs normal except at apex. On splitting the trachea a large amount of cheesy material was found, evidently sufficient to occlude the lumen and cause asphyxia. Close to the bifurcation one large ulceration the size of a dime and several small ones of pin-head size were disclosed. Encircling the trachea at this point was a mass of enlarged glands and included in the mass was some consolidated lung tissue from the apices. When pressure was applied to the mass on the dorsal side, large quantities of cheesy matter welled up into the trachea. This gland mass when cut was seen to be entirely broken down. The mass overlying the trachea was still firm. Microscopic examination of the firmer masses revealed typical tubercles.

Death was therefore caused by the breaking down of this localized tubercular mass and the discharge into the trachea of caseous material in amounts too great to be expelled.

Tubercular trouble was hardly thought of during life, as the parents were both healthy and the child was so perfectly well developed and nourished. After the post-mortem I was informed by a neighbor that a sister of the mother had died of tuberculosis.

SOCIETY PROCEEDINGS.

SIXTH INTERNATIONAL OTOLOGICAL CONGRESS.

(Continued.)

DISCUSSION—OPENING ADDRESSES.

Indications for Opening the Mastoid in Chronic Suppurative Otitis Media.

POLITZER (Vienna): It was a happy idea of the Organization Committee to have a discussion on such an important question. There is no question in otology which creates more actual interest than the opening of the middle ear. Experience has shown that the opening of the middle ear is of the most vital importance in preventing consequences hurtful to the organism and even of saving the life of the patient.

The indications were generally understood and in most of the well-marked cases surgeons were likely to be in perfect accord, therefore there could be little now to say in reference to the indications. The chief point in this discussion will be to decide whether it is justifiable without well-marked symptoms to operate as frequently as some operators maintained. Experience teaches that not rarely the clinical symptoms did not always correspond to the pathological changes found during the operation on the temporal bone. Sometimes only insignificant changes, such as a small quantity of granulation tissue in the attic or antrum, were found in cases where we have performed the operation on account of dangerous symptoms. On the other hand, we might find grave changes where before the operation we would not have expected them.

These circumstances render it more difficult to draw strict lines in regard to the indications, and there will always be cases in which some surgeons on account of the impossibility in predicting exactly the pathological changes in the temporal bone hold that it is not advisable to wait for the appearance of well-marked symptoms, and decide to operate at once, while other surgeons would advocate more conservative methods.

That many cases of chronic suppuration of the middle ear could be healed by vigorous antiseptic treatment, by removing the granu-

lations or cholesteatoma in the tympanic cavity and the attic, by partially removing the wall of the attic, has been shown by the daily experience of those surgeons who treated such cases by conservative methods. Although I am a strong advocate of the radical operation in suitable cases, I cannot agree with those surgeons who performed it often for the mere purpose of arresting the discharge, at least until strenuous efforts had been made to stop it by other means. In these cases it is not justifiable to have recourse to an operation, which, although not necessarily dangerous in the hands of a skilled operator, is still a serious one, especially when we consider (1) the many important structures in the vicinity which might be injured; (2) the possible permanent impairment of hearing in those who before the operation could hear fairly well; (3) the protracted healing process after the operation which very often renders the patient "hors de combat" for many months. It is my firm belief that these views will, in course of time, receive general assent, when further anatomical researches and more extended clinical observations have cleared up those points, about which at present our judgment is still in doubt.

WILLIAM MACEWEN (Edinburgh): When a pyogenic lesion exists in the middle ear or in its adnexa, which was either not accessible or which could not be effectually eradicated through the external ear, the mastoid antrum and cells ought to be opened. Some operators content themselves with opening the mastoid by sinking a narrow shaft into the antrum through which they can inject fluid, and others perform a typical operation irrespective of the pathological condition revealed. I first open the mastoid at the base of the supra-mental triangle. From that point the pathological lesions are followed anteriorly into the middle ear, especially exposing and carefully scrutinizing in all cases the attic of the antrum and tympanum, when, if found eroded, these plates are removed along with the morbid contents of the middle ear. We then pass backwards and downwards through the mastoid cells towards the sigmoid sinus, following the pyogenic erosions wherever they tend in that direction, and when necessary exposing the knee or the sigmoid sinus. After opening the mastoid antrum and cells, the further procedure has a purely pathological basis; if the disease revealed be extensive so must the operation. The ablation of the mastoid, while at once eradictory, a suppurative process chiefly located in the mastoid antrum and cells afforded at the same time ready access to the attic and inner wall of the tympanic cavity and to the auricular extremity of the Eustachian tube. Immediately after the operation one could initiate the forma-

tion of a vascular tissue, and thus create an efficient barrier against pyogenic extension to the otherwise most accessible and most vulnerable parts of the brain, the cerebellum and sigmoid sinus. In persistent otitis media purulenta the mastoid operation has at least three advantages over that of the treatment by way of the external auditory meatus. (1) Exposing to ocular inspection all the affected area and, by this, enabling the operator to follow and eradicate all the recesses in the bone made by pyogenic invasion. (2) Securing asepsis, and (3) Raising an efficient barrier against pyogenic extension between the most vulnerable parts of the brain and sinus. When it is recollected that in many instances the otitis media purulenta is obscure and overlooked and that symptoms of the purulent absorption might be of a typhoid as well as of a pulmonary type, one could easily understand that death might be attributed to pneumonia or to enteric fever. It could not be too often recalled that the virulence of the otorrhea could not be measured by the quantity of the secretion, its odor or the slightness of its initial symptoms, and that the pyogenic process might proceed insiduously until some slight exciting cause or accidental circumstance precipitated a dangerous or fatal crisis. Another question arose whether there were lesions in the middle ear which, though it might be mechanically possible to remove them through the external auditory meatus, could yet be removed with greater safety through the mastoid. This must be answered affirmatively while the middle ear and its adnexa were in a septic condition and when by applications through the external auditory meatus they could not be made aseptic prior to the performance of an operation entailing the exposure of a fresh surface to action of pyogenic organisms and their products. To operate through the external ear under such conditions was to court disaster. By opening the mastoid one could efficiently remove therefrom the suppuration and could eradicate its cause, after which an operation involving exposure of a fresh surface could be proceeded with in safety. In the presence of granulation masses one did not devise an operation merely for their removal, but for the eradication of the disease which had occasioned them. In removing them one had also to make provision that absorption would not take place through the wounded surface left thereby. In many, if not all, of these persistent pyogenic otorrheas, the osseous tissue was involved and it was very difficult by means of treatment through the external auditory meatus to eradicate the organisms that had housed themselves in the recesses of a minute particle of necrotic bone. In the interior of such harbors of refuge, situated in the mastoid, the pyogenic and

other organisms were safe from any antiseptic wave or blast introduced through the external ear. In recurrent cases of purulent otitis media one could not pronounce the patient safe even when the otorrhea ceased temporarily. Cholesteatoma and tubercular processes with secondary pyogenic involvement were conditions for which the mastoid required to be opened, as it is only in this way that these diseases can be efficiently removed. The problems connected with the question of operation upon recurrent attacks of purulent otorrhea are somewhat similar to those which arise in connection with appendicitis. Purulent otitis media and appendicitis have many analogies. They are both pyogenic, but while the latter is the result of a well-known bacillus whose course is definite, the former might be the result of one or other of a variety of organisms of greater or less virulency and producing different pathological effects.

With regard to the former, occurring in that perfect circulating chamber—the middle ear and its adnexa—and their relative pathological significance, valuable indications might be derived from the identification of the particular form or forms of organism which might be present in such cases. I presume after what I have written that it might be understood that the opening of the mastoid must always be undertaken as a preliminary step to operating upon those intracranial lesions originating in purulent otitis media, abscess of the brain, cerebellum and sigmoid sinus thrombosis. To operate upon the several complications and to leave uneradicated the paths by which pyogenic organisms entered was to render the patient's recovery doubtful and to expose him to fresh attacks. From personal experience I regard the operation of opening the mastoid as the safest and most efficient way of eradicating otherwise persistent purulent otitis. In conclusion, I would add that the more the pathology of purulent otitis media is studied, the more frequent the complete obliteration of the mastoid recesses is undertaken and the fewer will become the so-called incurable cases of ear disease. The operation of opening the mastoid substantially contributes to the well-being of human comfort and happiness and to materially lengthening life.

LUC (Paris): The surgical opening of the mastoid cavities is indicated in the case of chronic otorrhea under three distinct circumstances: (1) To give free escape to the pus in case of purulent retention. (2) To stop threatening or initial accidents of intracranial character in future of auricular origin. (3) To cure the otorrhea, after the symptoms had proved incurable by the various means of local treatment, including the arrest of all accessible granulations.

The operation, in the opinion of the author, was only urgent in the first two cases.

In all cases of chronic otorrhea the osseous openings must be extended from the antrum to the attic or from the attic to the antrum and be followed by curetting and disinfection of the entire cavities of the middle ear.

In the case of intracranial complications, the osseous opening must be immediately extended to the dura mater, but this membrane was only to be opened in a further operation, if, after as short an interval as possible of expectation, the intracranial symptoms persisted or increased.

KNAPP (New York): We do not only want to be informed that under certain conditions the mastoid should be opened, but also when, how and where, in particular how extensively it should be opened, the description of the mere technique or the operation however lying outside the question. When acute purulent otitis media was on the border-line of becoming chronic or had just become chronic, opening of the mastoid was indicated both as a curative and a prophylactic measure. The indication for opening the mastoid was strengthened if tuberculosis, diabetes, syphilis or some other constitutional disease were present, particularly in the case of children. The frequency of relapses in children is due to the structural conditions of the infantile mastoid. I mention a case which has come under my own observation to show that the suppuration may leave the tympanic cavity, attic and antrum but extend into and beyond the top of the mastoid. The pus cells in this case traveled through the condensed bones in passages so small that they could not be followed with the naked eye.

The indications for operation in advanced cases of destructive subacute chronic mastoiditis were absolute, and in the relapses of suppurative mastoiditis almost absolute. The prognosis in both cases was favorable. He had seen children recover who had a whole mastoid and a good deal of the adjacent temporal bone converted into gelatinous masses and the dura extensively covered with soft discolored granulations. The best treatment of cases which from the beginning showed a disposition to long duration was to perform the first opening of the mastoid and conduct the subsequent local and constitutional treatment with the utmost care and perseverance so as to prevent the affection becoming chronic. As particular requirements in such cases I would lay stress on: (1) A large, deep and angular incision of the drum-head and the adjacent part of the posterior wall of the ear canal as soon as there is bulging; (2) open-

ing the mastoid through the removal of all diseased tissue; (3) enlarging the antral canal by cautious scooping; (4) watching the course of recovery, using dry treatment rather than syringing. In chronic suppurative otitis media without symptoms of mastoid involvement that had resisted topical treatment and intratympanic operations, attico-antrectomy was indicated. In many cases it was difficult to determine when this should be done. During past years intratympanic operations had steadily lost ground. Many aural surgeons reported good results from the removal of the ossicles and cleansing the attic in cases of chronic otorrhea with or without cerebral symptoms. But unfortunately the good results in most of them had not proved permanent. He alluded to a patient who had long been treated by intratympanic procedures but received only temporary relief. These cases had determined him not to lose much time with intratympanic operations, although I would not go so far as an excellent otologist, who told me that he had abandoned them altogether.

If the outer wall of the mastoid was perforated and an abscess or a fistula present, it was indicated to evacuate the abscess and seek the perforation, and guided by it or the fistula, open the mastoid freely and remove all morbid material. That was better than to let the patient take the uncertain chances of a spontaneous recovery which was rarely complete and permanent. If the disease extended beyond the mastoid process the radical tympano-mastoid operation had to be followed by operations on the affected parts outside the ear. If in chronic purulent otitis media the anterior wall of the mastoid bulges—which means a suppurative involvement of the cells adjacent to the posterior wall of the ear canal—a free incision down to the bone was indicated. The wall should then be explored with a probe or, as the skin was swollen and painful, wait a few days to see whether the mastoid should be opened from the outer surface or from the interior. If the pus extended from the ear into the pharynx, forming a retro-pharyngeal abscess, open the mastoid and expose the tympanic cavity and attic clear to the tympanic orifice of the tube and free it as far as possible from pus and disintegrated tissue. The extension of the disease to the posterior cranial fossa was so important and so frequent that the removal of the posterior wall, in particular that part of it which formed the sulcus of the sigmoid sinus, had been recommended and practiced by some competent aurists in all cases. If the posterior wall showed no flaw on closest search and the suppuration was limited, the left wall need not be disturbed, but when the contents of the mastoid have undergone ex-

tensive molecular disintegration, I consider the exploratory partial exposure of the sigmoid sinus and dura mater correct practice. Similar indications resulted from the extension of the suppuration into the middle cranial fossa, an occurrence less frequent than its extension into the posterior fossa. Extension of the suppuration in the petrous bone might indicate opening of the mastoid as an initial step for removing carious and necrosed portions of the petrosa or to evacuate pus which passed from the middle ear through the petrous bone into the posterior cranial fossa producing an epidural abscess on the posterior surface of the petrous bone. Meningitis in the first stage might be recovered from by opening of the mastoid and posterior and anterior cranial fossa, boldly exposing the posterior surface of the petrous and liberating the pus. Necrosis of the different portions of the temporal bone indicated the opening of the mastoid in most cases. It was evident, in conclusion, that the opening of the mastoid in its recent development by the combined efforts of general and aural efforts took rank amongst the most important operations.

It was decided to hear Prof. Lucae's paper before the discussion was thrown open.

LUCAE (Berlin) summarized his paper by saying that he was of the opinion that the opening of the mastoid was a very important help, but he considered, that instead of saying: "I have operated on a good many patients," one should be prouder to state: "I have cured so many patients without having recourse to operation."

DISCUSSION—GENERAL.

GUYE (Amsterdam): The mastoid operation is a very great boon to the patient and to humanity in general, as Prof. MacEwen has so well said, but, nevertheless, as to finding the indication for mastoid operations only in discharge which did not give rise to dangerous symptoms, I can not agree. I coincide with Prof. Lucae when he states that one should be prouder of having cured cases of chronic suppuration without an operation. I consider that the important point in a case of chronic otorrhea is to keep the meatus as clean as possible, the using of carbolized glycerine and to exercise great care in keeping the Eustachian tube open. My practice with patients who could bear the expense is to get them to blow menthol into the nose. The mastoid operation ought to be reserved for really dangerous cases.

MACBRIDE (Edinburgh) joined views with Professors Politzer, Lucae and Guye in their conservative methods with regard to mastoid

operations. Prof. MacEwen had laid down that the simple discharge from the ear was an indication for a mastoid operation. The question came to be what could they promise to their patients from mastoid operation? In chronic cases they could promise the patient nothing. A certain proportion did not do well after the operation. The discharge remained and the patient was exactly where he was before. But he did not do quite enough operations in acute cases just beginning to become chronic.

GRADINIGO (Turin): Since performing a great number of middle ear operations by the retro-auricular method in cases of chronic suppurative otitis media, he had reached the conclusion that the indications of this intervention, such as generally admitted to-day, must be exaggerated. For the purpose of healing simple chronic pathological conditions of the tympanic cavity, the removal of the ossicles or even of the hammer only, and destruction through the external auditory canal of the posterior superior bony wall was, for the most part, sufficient. In such cases the retro-auricular method did not give better results and even exposed the patients to risks of various kinds. It required a long after-treatment, difficult of practice, especially on children, and the final result often compromised the success of the best performed operation. Careful comparison of the retro-auricular operation with the opening of the mastoid must be considered in cases of cholesteatoma antri and all cases where symptoms existed suspected of mastoideal pathological conditions or of intracranial complications. Regarding the technique he preferred the Zaufal-Strebe method.

NOYES (New York): While fully in accord with the advisability of operative treatment for cases where there was any bone disease, still he recommended the dry treatment. Powdered boracic acid was inserted in the ear by means of a quill for some time. There was a class of chronic cases in which the acute process might have already considerably subsided for which the treatment by dry powdered boracic acid was most effective, satisfactory, and not dangerous.

KÜMMELL (Breslau) said there were cases where the operation was forced.

THOMAS BARR (Glasgow) regretted that the subject of this discussion excluded the methods of operation and the result of operations, especially the latter, because one of the most important considerations with regard to this subject was the results of operative measures in chronic suppuration of the middle ear.

Probably the most interesting class of cases was that for which there was no immediate demand for operation—cases where there were no objective or subjective indications demanding speedy opera-

tion. We were indebted to Prof. MacEwen for uttering a warning about continuing the treatment by external meatus too long before adopting operation. We must not, however, be too much discouraged by these dangers. Still it was well that a surgeon of Prof. MacEwen's vast experience should utter these words of warning. The question of attic treatment had been rather disparagingly referred to by Dr. Knapp. The attic syringe was of great value, although many in use were too narrow. He had found that, after the attic treatment, no further operation was required.

WILLIAM MILLIGAN (Manchester): If, after twelve months' treatment, the suppuration didn't come to an end, mastoid operation should be adopted; he should like to associate himself very largely with the views of Prof. MacEwen.

T. MARK HOVELL (London): The mere fact that the discharge had existed for a long time was not sufficient reason for the mastoid operation. He cited one discharge that existed for forty-three years without any serious consequences.

C. R. HOLMES (Cincinnati): He had practiced along the lines laid down by Prof. MacEwen. Dr. MacBride had said that they couldn't promise results to mastoid cases. He certainly wished to put himself against that statement. He believed that in almost every case they could promise the patient a cure. They should save the patient the possibility of two operations when they knew one thoroughly performed would cure the patient.

E. B. DENCH (New York): Each case must be treated according to the local conditions present. When the mastoid operation was involved, a complete mastoid operation was imperative. If, during the operation, the surgeon found that infection of the lateral sinus had taken place, he must not hesitate to remove every source of infection. In one of the speaker's cases a second operation was necessary owing to jugular involvement.

E. CRESWALL BABER (Brighton): It was agreed that in chronic suppuration of the middle ear accompanied by severe pain an operation should take place. The most interesting question to my mind was whether the mastoid should be operated in the case of chronic discharge of the ear without any symptoms except the discharge. The logical surgical position was not to have a mastoid operation until one had exhausted all means for operating through the meatus, such as curetting. The real facts of the case ought to be put before the patient.

HOLINGER (Chicago): We are all more or less conservative in the treatment of chronic suppuration. There is one class of cases

undoubtedly where conservatism was absolutely contra-indicated, viz., the cases following the influenza and grip. Whenever, in a case of chronic suppuration of the middle ear or mastoid antrum, no matter how innocent it looked, acute otitis media after influenza occurred, we should not lose any time with any conservative measures. The only hope was to operate immediately.

P. R. W. DE SANTI (London): The duration of the discharge in cases under my observation was from two to fifteen years. Out of twenty-six cases twenty-four operations had been found to be perfectly successful, and in four cases the suggestions of Prof. MacEwen had been followed.

F. FAULDER WHITE (Coventry): It would be a deplorable thing if it went out to the profession that otologists in general were all for operations and not for any other treatment. They met the average practitioner and he told them that there was no cure for otorrhea. Writings had created that idea. A great many people wouldn't be operated upon and consequently they were not getting treated at all for otorrhea. I recommend antiseptic irrigation. I am not adverse to operations where the bone was diseased, but rather regretted hearing from Prof. MacEwen that all these cases had better be treated by operation, as it prevented a lot of very good general treatment.

M. D. LEDERMAN (New York) inquired what would be a suitable length of time for treatment.

URBAN PRITCHARD (London): If we operate, it must be done thoroughly and to do it thoroughly we must take great care not to leave a large hole covered up behind. These are the cases that made it difficult to say whether we should operate. Replying to Dr. Lederman's inquiry, he said that it was impossible to say how long a case should be continued in the ordinary treatment before determining an operation.

Other participants in the discussion were:—DRS. MOURE (Bordeaux), JANSEN (Berlin), EEMAN (Ghent), BRIEGER (Breslau), FARACI (Palermo), DI MENDOZA (Paris).

Prof. MacEwen briefly replied and pointed out that he had not said, as stated by Dr. MacBride, that in simple discharge operation should be resorted to. That statement had been made elsewhere and as he had not paid the slightest attention to it it had been repeated here. He wished it to be made known that it was not correct.

Prof. Luc and Prof. Knapp also briefly replied.

The Operation for the Removal of Adenoid Growths with the Head hanging over the Table, while the Patient is under the influence of Chloroform—P. RUDLOFF (Wiesbaden).

The author first drew attention to Rose's method of performing operations on the hanging head in cases in which there is danger of blood suction. Adopting this method, which excludes the dangers arising from the aspiration of blood and tissue, he described his method which he had employed during the last eleven years. His experience included over 700 cases. He advocated the free administration of chloroform and employed Boecker's and Hartmann's curette in performing the operation. In describing the method of operation he drew attention to the following points:

I. Adenoid growths occasionally have their origin in Rosenmüller's fossæ; in removing them it is important (*a*) to avoid injury to the pharyngeal orifice of the Eustachian tube; (*b*) to bear in mind that the tissue surrounding the carotid artery extends into the lateral wall of the fossa and that danger of injury to this artery is to be guarded against. How necessary this warning is, is proved by the case recorded by Schmiegelow.

II. Adenoid growths must be thoroughly removed (*a*) in order to avert as far as possible the danger of recurrence, (*b*) because a certain percentage of the cases, which occur, are tubercular.

III. If the tonsils are enlarged, it is advisable to remove them some time previously.

Dr. Rudloff illustrated his method by means of a specimen (sagittal section through the head) and exhibited the instruments he employed. He further showed casts, illustrating the varying dimensions of Rosenmüller's fossa and the relation existing between these fossæ and the orifice of the Eustachian tube, and referred to a specimen showing the relation between the carotid artery and the lateral wall of Rosenmüller's fossa, for exhibition in the museum of the Congress.

His statistics recorded a recurrence of three and a half per cent.

In concluding, he remarked that he did not confine himself to the method he described, but adapted himself to the individual peculiarities of the cases which came under his care.

LANTERN DEMONSTRATIONS.

The Anatomy of the Frontal Sinuses and Ethmoid Cells—A. HARTMANN (Berlin).

The Course and Connections of the Central Auditory Tract—ALDREN TURNER (London).

The Topography of the Facial Nerve in its Relation to Mastoid Operations—R. D. JOYCE (Dublin).

Special demonstrations were also given in the museum by Dr. L. Katz (Berlin), presenting an interesting series of microscopic and macroscopic preparations of the organ of hearing. The gems of this collection were the transparent preparations of the labyrinth. These have been photographed and adapted to stereoscopic demonstration.

PAPERS.

The Treatment of Chronic Suppuration of the Attic—E. MÉNIÈRE (Paris).

This paper was read by Dr. Lermoyez (Paris) owing to the author's absence.

Endocranial Complications of Otic Origin—E. J. MOURE (Bordeaux).

This paper appears in full in the October, 1899, issue of *THE LARYNGOSCOPE* (p. 205).

The Operative Treatment of Mastoid Inflammation—E. B. DENCH (New York).

Examination of the statistics of the larger hospitals in New York City devoted to the special treatment of diseases of the ear showed that ten years ago the mastoid operation was rarely performed. During the last few years it has been performed almost daily. Another important fact was while in former years the treatment of intracranial complications of suppurative middle-ear inflammation was relegated entirely to the general surgeon, at the present day these operations were performed by the otologist. Regarding the indications for opening the mastoid process in chronic suppurative otitis media, it is my opinion that the indications for the operation laid down by Schwartze many years ago were those followed at the present day. The only difference was that under improved surgical technique, by which perfect asepsis was secured, the surgeon did not hesitate to act on these indications immediately. For this reason the number of operations was relatively greater than in former years. If

asked to give the signs which seemed to indicate the necessity of operative treatment in this condition, I should name two: (1) Local tenderness over the region of the antrum, and (2) a sagging of the upper and posterior wall of the external auditory meatus close to the membrana tympani. When these signs exist operative interference is always indicated. Experience has shown that the temperature of the patient furnishes but little indication. Spontaneous pain might also be absent although the mastoid might have undergone extensive destruction. Many surgeons regard "tip tenderness" as an important diagnostic point. In my experience it has proven of but little value. Owing to the increased frequency with which the mastoid operation is performed it might be as well to consider any possible dangers which might arise in the operation itself. My own statistics show that out of 228 operations upon the mastoid process in no case could death be attributed to the operation. Where intracranial complications existed, operative treatment offered the only means of relief. In 13 cases in which thrombosis of the lateral sinus was present, death followed in but two cases. One patient died of acute nephritis, which was probably caused by ether narcosis. Where there was an epidural abscess my statistics showed that of 14 cases operated on all recovered.

Regarding the radical operation for the relief of a chronic purulent otitis media with involvement of the mastoid (the Stacke-Schwartz operation), 17 cases have been operated on. Of these 12 were cured and 5 improved. It can therefore be easily seen that the mastoid operation is not in itself a dangerous procedure if the rules of aseptic surgery are closely followed. No operation of this character should be performed without the strictest antiseptic precautions both as regarded the field of operation and the instruments, also the surgeon's hand. If proper care was taken, the exposure of the meninges, either in the middle or posterior cranial fossa, or exposure of the opening of the lateral sinus, did not increase in any degree the mortality of the operation. On the other hand, I have found that the more extensive and radical the operation, the better the result. The surgeon who operated most frequently and most radically was really more conservative than he who waited for very pronounced symptoms. Regarding the technique, all details of preparation of the operative field should here be undertaken with strict surgical cleanliness. The primary incision should lie close to the line of auricular attachment and should extend from just below the tip of the mastoid to just above the external auditory meatus, the soft parts being divided down to the bone. In this manner a very narrow anterior flap was formed.

The anterior flap was pushed forward by means of a periosteum elevator, exposing thoroughly the superior and posterior margins of the bony external auditory canal. All bleeding points were secured by means of artery clamps. The next step was to sever the attachment of the sterno-mastoid muscle. This was best done by means of blunt scissors curved on the flat. The tendinous attachment of the muscle should be divided until the finger can be passed beneath the tip of the mastoid into the digastric fossa. In every case the mastoid antrum should be first entered. This applied not only to those cases in which perforation of the cortex was present near the region of the antrum, but also where spontaneous perforation had taken place into the digastric fossa through the internal plate of the mastoid. For removing the mastoid cortex he preferred either the chisel or the gouge. The bone should first be removed as close to the posterior wall of the bony meatus as possible and not above the spinum supra-meatum. The opening in the bone should be gradually deepened until a probe can be passed through the mastoid antrum into the middle ear. The wound should then be explored by means of the probe to ascertain whether the bony walls are intact. After the mastoid antrum has once been entered the topography of the process is evident. The entire mastoid cortex should then be removed by means of the chisel or gouge and the tip removed by the bone forceps. Great care should be taken to thoroughly curette the aditus and antrum so as to permit free drainage of the middle ear through the posterior opening. Experience has taught me that the operator was inclined to do a less radical operation than was absolutely necessary. In my later cases I have found not infrequently that the bone seemed almost normal. Close inspection, however, revealed the fact that it was a little congested and slightly dark in color. With reference to any possible accidents that might occur during the operation, these are of trifling importance provided aseptic treatment was carried out. I never operate upon a case without expecting to expose or open the lateral sinus or to enter the cranial cavity. The exposure of the sinus in doubtful cases is imperative, and if its appearance is not perfectly normal, a free incision should be made into the vessel. No harm could possibly result from this procedure, and many a life which would otherwise be lost might be saved by what was apparently a radical and uncalled for procedure. The same applies to entering the middle cranial fossa. My own cases which have terminated fatally had been those in which I had not done a complete and radical operation.

KNAPP (New York): Do you attach the same importance to tenderness on pressure in acute cases as in chronic? Dr. Dench replied in the negative.

Panotitis: Cerebral Complications; Operation; Death; Post-Mortem—DELIE (Ypres).

A patient, aged forty, presented all the symptoms of chronic inveterate neuralgia of the right trigeminal. Deafness declared itself, and was found to be due to an exostosis of the right external auditory canal. An operation restored his hearing but produced no change in the right hemicrania. A few days later symptoms of acute mastoiditis declared themselves, accompanied by vertigo, and a hardly perceptible otorrhea. A Stacke's operation showed the only lesions to be purulent infiltration of the external wall of the apophysis and a small polypus in the attic. The patient died comatose a few days afterwards.

At the post-mortem examination the following lesions were discovered:

A purulent infiltration in the bony roof of the right middle ear.

Symptoms of acute meningitis limited to the interior surface of the bulb, spreading from the side of the affected ear to the internal third of the cerebellum, and compressing on the left side all the meninges which covered the left side of the cerebellum. There was pus in the fourth ventricle, and in the left lateral ventricle. The left ear was free of any pathological lesion, and the same could be said for all the other parts of the endocranium and its coverings, as well as for the bony skull.

The Petro-Squamosal Sinus—Anatomy and Pathological Importance—A. H. CHEATLE (London).

As little or nothing is written in even the best works on otology concerning this sinus, which has most important connections with the middle ear both from anatomical and pathological standpoints, I have thought the subject of sufficient interest to bring before the Congress. The following British authors have written on the subject: J. F. Knott, of Dublin (*Journal of Anatomy*, Vol. xvi, page 27), who quotes C. Krause, Luschka, Otto and Sir Charles Bell, Henry Morris (*Anatomy*, page 661), Professor MacEwen ("Pyogenic Diseases of the Brain and Spinal Cord," pages 2 and 8), and Quain (*Anatomy*).

COMPARATIVE ANATOMY.

In some lower animals, dog and calf for instance, this sinus runs across the roof of the middle ear making its exit by means of a large

foramen between the base of the zygoma and the bony meatal wall, and serves almost entirely for the exit of the intracranial blood, taking the place in fact of the sigmoid portion of the lateral sinus.

In the higher forms of monkeys, such as the chimpanzee, gorilla and ourang outang, the sinus closely resembles the human.

In the *Macacus* group the young often have the groove which runs along the petro-squamosal suture, and the anterior external opening well marked; while with the adult the opening is usually closed or rudimentary, leaving the groove which runs forward to the foramen spinosum. In other varieties, notably in Baboons, *Chrysothrix*, *Cebus*, *Midos*, *Hapule*, *Lemuridæ* and *Indri*, both the groove and the external opening are well marked, the latter piercing the bone between the large post-glenoid tubercle and the bony meatus. In these the sinus does not take the place of the sigmoid portion of the lateral sinus as it is also present and well marked.

HUMAN ANATOMY.

In early fetal life, before the formation of the internal jugular vein, the petro-squamosal sinus carries all the intracranial venous blood emerging in front to open into the primitive jugular (afterwards the internal jugular). It is not to be wondered then that this channel which serves such important duties in early fetal life should persist in some form or another in later life. The anterior opening usually closes, the sinus or its remains at its anterior extremity forming a connection with the middle meningeal vein. The sinus dwindles to a small size, while the opening into the lateral sinus often persists.

With regard to the persistence of the anterior opening in front of the meatus in adult life, I examined 2,585 skulls in the Royal College of Surgeons' Museum, and among this number I found in 23 rudimentary remains, 3 in the glenoid cavity, 3 in the zygomatic process itself, 6 in the base of the zygoma, and 11 just external to the Glaserean fissure, with sometimes a fine groove running outwards and occasionally bridged over by the junction of the post-glenoid tubercle with the bony meatus. I must here say that it is the rule rather than the exception for remains of the sinus to be present in some form or another all through life. In this statement I am supported by my friends, Mr. Arthur Keith and Mr. Cadman. Unfortunately it is impossible in the time allowed me to describe minutely the different varieties, but in the photographs to be shown directly some idea can be obtained, and some specimens of my own are now in the Museum.

In infancy and childhood the sinus as a rule had a well-marked opening into the lateral sinus behind by means of a valve-like opening and in front joining the middle meningeal vein, while in adult life, although it is often marked, careful search has sometimes to be made. The absence of markings on the bone in the neighborhood of the suture does not by any means show that the sinus is not present. In infancy and early childhood, in the region of the posterior extremity of the suture, numerous irregularities are often seen; it is at this spot that a bridge often forms over the posterior end of the sinus before it opens into the lateral sinus, a common condition in the adult bone. I will now show photographs of a few specimens in my collection.

A series of excellent photographs demonstrating various phases of the sinus were thrown on the screen.

On looking at the roof of the middle ear in a fresh specimen after the dura mater has been stripped off, a network of rather large veins can be plainly seen immediately beneath the bone; from this network several veins emerge through the suture to empty into the sinus.

In children in which the interval between the suture is wide these are sometimes numerous, especially posteriorly. In the adult a fairly constant one is present on a vertical level with the membrane; or more may be present at intervals. These emerging veins receive a fine covering representing the meninges.

Occasionally the openings of fairly large veins can be seen on the cerebral side of the sinus, especially at its anterior part.

PATHOLOGICAL IMPORTANCE.

It is therefore seen that there is a connection between the veins of the middle ear and those of the meninges and occasionally, at all events, with those of the temporo-sphenoidal lobe, and through the meningeal coverings the middle ear is in communication with those of the middle and posterior fossæ. Under these circumstances the importance of this sinus with its tributaries and connections, from a pathological point of view, is very evident and explains how infection may spread from the middle ear to meninges and brain without microscopical evidence of the connection. Such a state of things is not uncommon, as we all know, in infants and children, in whom, as I have said, the pathway we are considering is well marked and in whom the membrane may be intact. There is a specimen of mine in the Museum, obtained from the post-mortem room from an infant, aged one year, who died of suppurative lepto-meningitis, without a known cause, during an attack of pneumonia. The middle ear was

full of pus containing all sorts of pathologic cocci. I cut sections of the emerging vein but was unable to find cocci, but this by no means precludes this as having been the pathway. There was no thrombosis. This is by no means the first case of the sort I have seen. Occasionally it is seen in adults, but as a rule a perforation is present in the membrane. It is astonishing, in the face of this close connection of the middle ear with the meninges, that meningitis is not of more frequent occurrence. The explanation may be that the meninges, like the peritoneum, are able to deal with a certain amount of infection, and only when the dose is excessive that this resisting power is overcome. This pathway will also explain the presence of a cerebral abscess without microscopical connection with the diseased middle ear. That the sinus may be the pathway for septic thrombosis of the lateral sinus I have evidence in two cases.

A. H. Cleveland, of Philadelphia, in the *Archives of Otolaryngology*, Vol. xxiv, p. 136, 1895, relates the case of a boy, aged six years, who died of pyemia. At the post-mortem the petro-squamous sinus was found abnormally large and deep, being at one or two points almost entirely bridged over by bony processes. At its anterior extremity necrosis had taken place and pus had entered the sinus, causing a thrombus which extended backwards into the lateral sinus. Meningitis was present on the same side.

In St. George's Hospital Museum, and now in our own, is a specimen (No. 33a) of the dura mater, with the lateral and longitudinal sinuses, from a man aged twenty years who, after suffering with discharge from the right ear for three months, died with symptoms of meningitis. At the post-mortem examination suppurative meningitis was found over the right side with septic thrombosis of the lateral and longitudinal sinuses. A vein was found which made a direct communication between the tympanum and the lateral sinus and which would admit the passage of an eye probe.

It may be that we have here one of the pathways which will solve some of the unaccountable intracranial affections met with by the physician, such as the posterior basic meningitis of infants, cerebro-spinal meningitis, and perhaps some cases of tuberculous meningitis, especially when the lining membrane of the middle ear is like the following photograph (shown).

It is taken from a section of the lining membrane of the middle ear of an infant who died of tuberculosis meningitis and general tuberculosis. Tubercle bacilli can also be seen in another section (to be seen in the museum).

I should like to draw attention to the condition of the middle ears of children who have died of general tuberculosis, including menin-

geal tuberculosis. There is thin, purulent matter in the cavity, often with an intact drum, irregular thickening of the lining membrane, which shows on section patches of well-marked infiltration, but no tubercle.

In conclusion, I wish to give my best thanks to the Council of the College of Surgeons, to Prof. Chas. Stewart, F.R.S., and Mr. Arthur Keith.

KNAPP (New York) said he was sure he was speaking the sense of the convention if he expressed his most hearty thanks to Dr. Cheatle, not only for the instructive demonstration and his important remarks on the petro-squamosal sinus, but also on his untiring efforts in bringing about such an unique otological museum, which they had all admired and studied with keen interest. His attention was first drawn to the significance of the petro-squamosal sinus by the case of Dr. Cleveland, of Philadelphia, which Dr. Cheatle quoted, and of which Dr. Cleveland had sent the speaker his manuscript with the remark that in text-books of aural surgery, and also in those of descriptive anatomy, nothing, or almost nothing, was to be found. He looked up the subject and found only a short but very good description (about 15 lines small type) in Quain. Now that authoritative attention had been directed to this sinus they should hear more about it. He felt sure that by its knowledge they should be able to understand many symptoms in vivo and at autopsies which thus far had been obscure.

A New Treatment for Chronic Catarrhal Inflammations of the Pharynx Connected with Diseases of the Ear—V. GRAZZI (Florence).

After referring to the frequency of chronic catarrhal pharyngitis and the inefficiency of all the methods hitherto proposed for its treatment, the author discusses the varieties and different degrees of the affection. He exhibited some microscopic preparations in order to show the normal structure of the pharynx and the alterations produced in it by chronic catarrh with hypertrophy of the adenoid tissue. He remarked that the structure of the pharynx itself suggested to him the method of treatment under consideration—a method which consists in the compression or crushing of the diseased tissues. Consequent on these maneuvers, repeated more or less frequently, the tissues become less inflamed, the granulations are re-absorbed, the function of the granular tissue is re-established as well as the circulation of the blood and lymphatics.

Prof. Grazzi carries out this treatment by means of small metal probes, bent at an angle more or less obtuse; the small probes end in a kind of fork into which are fixed small rollers. These are pressed up and down on the pharynx with more or less force, according to certain indications mentioned by Dr. Grazzi, and have been found very useful in certain cases where the disease had spread to the middle ear. The instruments were demonstrated at the Congress.

BRITISH MEDICAL ASSOCIATION.

SECTION OF LARYNGOLOGY AND OTOTOLOGY.

67th Annual Meeting, Convened at Portsmouth, August 3, 1899.

(Reprint, Journal of Laryngology).

Chairman's Address—Thirty Years' Progress in Rhinology.—

E. CRESSWELL BABER (Brighton).

In opening the work of this Section, it may not be out of place if I make a few remarks on the development of rhinology during the last thirty years.

It is just thirty years ago that Wilhelm Meyer, of Copenhagen, brought his eventful discovery of adenoid vegetations to this country, and read a paper on it before the Royal Medical and Chirurgical Society in London on November 23, 1869.¹ He had previously published an article in the *Hospitals Tidende* (1868), and subsequently wrote a long monograph on the subject in German in the *Archiv für Ohrenheilkunde* of 1873. Meyer, as I remember him in Copenhagen in 1874, was a charming personality, enthusiastic in his work, and full of energy with, as he himself described it, his heart in his general practice, his intellect in his special work. Meyer's paper, which forms a landmark in modern rhinology, appears to have attracted little immediate attention in this country, and it was not till some years after its publication that we find any original articles on the subject in England. Meyer, as he acknowledges, had been preceded in his discovery by the publication of scattered cases of adenoid vegetations by several observers, notably by Voltolini and by Loewenberg, but for an exhaustive study of the disease, both as regards diagnosis, prognosis and treatment, and for a recognition of its great importance and far-reaching effects, we are undoubtedly indebted to Wilhelm Meyer, who, as Mackenzie says, may be justly considered as the discoverer of these growths. Meyer recognized his first case by palpitation, and laid great stress on this mode of examination. His description of this disease was so full and complete that, except in pathology and treatment, no material advance has since been made. Numerous fresh instruments have, as you are aware, been devised for the operative treatment of adenoids, and removal under general anesthesia is now an every-day occurrence. The use of gen-

eral anesthesia was, I believe, first practiced in this country, one of the pioneers being Dr. Woakes, who, as mentioned in a paper on adenoid vegetations which I wrote in 1882,² had been using anesthetics for the purpose to a considerable extent before that date.

The way for Meyer's discovery had been paved by the invention by Czermak some ten years previously of the art of posterior rhinoscopy. Voltolini, who published his first work on rhinoscopy in 1861,³ began to work at this subject soon after Czermak, and was an ardent advocate for many years and in many writings of this method of examination. To him we are indebted for insisting on the importance of the palate hook, although one had been previously used by Czermak. Voltolini emphasized the fact that firm pressure with the hook was better borne than slight irritation, and therefore advocated the use of a large, strong hook drawn rapidly and firmly forwards. It was not, however, till more than twenty years afterwards when White, of Richmond (Virginia) and others introduced the self-retaining palate hook, employed after cocaineization, that the full benefit of this method of examination was apparent, and I think that even now the value of this instrument is insufficiently taught in our schools, as it can be so easily used on almost any patient, and gives an insight into the naso-pharyngeal cavity obtained by no other means. This instrument alone enables us to fully examine with the eye the posterior wall of the cavity; otherwise the view of the latter obtained in the mirror is usually too foreshortened to be of much value. Of Voltolini it has been truthfully said in a recent work⁴: "In the course of a long and laborious life he has presented science with many valuable observations; even where he errs he is more instructive than the eclectic from whom we only obtain a selection of opinions current at the time, without meeting with any original thought."

Anterior rhinoscopy, which is, of course, of much older date, cannot, singularly enough, be said to have been much cultivated in modern times until 1859, when Markusovsky invented the speculum bearing his name. Thudichum, of London, and Duplay, of Paris, both published accounts of their specula in 1868, instruments which for their purpose cannot be improved on at the present day. Fränkel's speculum dates from 1872. But real advance in anterior rhinoscopy was, I think, more due to the use of light reflected from a mirror with a central perforation than to any special form of speculum.

In 1882, the study of anterior rhinoscopy, and of nasal diseases generally, received great impetus from the well-known researches of Zuckerkandl on the normal and pathological anatomy of the nose

and its accessory sinuses. The next most noticeable event in rhinology was the ardent championship of reflex nasal neuroses by Hack, of Freiburg. In an able brochure published in 1881, and in numerous other papers, Hack contributed abundant material on the subject, and albeit his theories were not all sound, still a valuable substratum of truth, sifted by later observers, remains, for which we are indebted to this brilliant worker. Amongst other things, Hack's theories led to an extended use of the galvanic cautery, invented by Middledorpf some years before, and much employed by Voltolini. Moderation in regard to its use has now happily set in, and it is not used so promiscuously as I am afraid it was at one time. It may be mentioned that before Hack both Voltolini and B. Fränkel had drawn attention to the relation existing between asthma and certain forms of nasal disease. Very shortly after this date, rhinology was destined to undergo what amounted practically to a revolution by the introduction of cocaine. In 1884 Jelinek published an article on its use in the throat and nose. In spite of the originally high price, the employment of cocaine rapidly spread in this department, not only on account of its anesthetic properties, enabling numberless operations to be painlessly performed, but also on account of its contracting power on the nasal mucous membrane. Its value in the latter respect in enabling a successful examination to be made may be fairly compared to that of atropine in examination of the eye.

While all these rapid developments were taking place with regard to the careful examination and treatment of the nasal cavities, the study of the various reflex neuroses connected with the nose and the use and action of cocaine, a new phase of rhinology was springing up. I refer to the study of sinus diseases. Diseases of the accessory sinuses when producing gross extranasal lesions had been known from time immemorial, and many fearful and wonderful operations had been devised for their removal. But the study of diseases of the sinuses, especially chronic empyema with only nasal symptoms (*Latent Empyema*, Lichtwitz) was practically a new departure and materially enlarged the scope of rhinology. The nasal cavities as we can inspect them were beginning to be regarded as only a small portion of the nasal tract, the gateway as it were to large and important cavities whose diseases merit careful study. Ziem, in his publications dating from 1880 onwards did pioneer work in latent empyema of the antrum, and was followed by a host of observers, who added largely to our knowledge. One of the most stimulating is Grünwald, and whilst his conclusions are doubtless some of them extreme, his work is highly suggestive and has greatly increased the

interest taken in the subject. All the different sinuses have been carefully investigated, including the frontal sinus, on some of the diseases of which we are about to hold a discussion.

Amongst other developments of modern rhinology may be mentioned the general recognition of the importance of nasal respiration and the improvement of the means of treating various forms of nasal obstruction. The pathology of the nose has continued to advance *pari passu* with that of other parts, and bacteriology has been laid under contribution in investigating the diseases of this organ. The physiology of the nose has also been reinvestigated.

In these few remarks I have merely attempted to point out some of the rapid strides which this specialty has made in the last thirty years, and in doing so have had to omit the names of very many successful workers, some of whom are honoring us with their presence at this meeting. This short sketch has, however, I hope, shown that the progress of modern rhinology is in nowise behind that of any of the other medical sciences, and I feel confident that by persevering and judicious application of the general knowledge of medicine and surgery to this particular branch, the efforts of its many devotees all over the world will enable it to make as rapid progress in the future as has been accomplished in the past. If I have confined my remarks to rhinology it is not that I consider it more important than laryngology and otology, but that a review of all three would have been impossible without encroaching unduly on your time.

Before concluding I should like to express the pleasure that I feel at seeing so many of our foreign colleagues present, and to offer them a cordial welcome in the name of the Section, and an invitation to take part in its proceedings.

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³ *Die Rhinoskopie und Pharyngoskopie*, Festschrift, Breslau, 1861.

⁴ *Handbuch der Laryngologie und Rhinologie*, edited by P. Heymann, Vol. i, p. 32; article by P. Heymann and E. Kronenberg.

DISCUSSION—OPENING ADDRESS.

The Diagnosis and Treatment of Chronic Empyema of the Frontal Sinus.

CHARTERS SYMONDS (London) divided the cases into three groups :

1. Those in which there is purulent discharge from the nose, with, as a rule, formation of polypi.
2. Those in which there is distension of the sinus without nasal discharge.
3. Those in which there is distension of sinus, together with nasal discharge of pus.

Attention was chiefly given to the diagnosis of the first class of cases, as the class most frequently coming before the rhinologist. He laid stress upon the fact that, whenever pus was seen amongst or around polypi, suppuration of one or more of the sinuses was indicated. He considered the pus to be the cause of the polypi, and to explain the frequent recurrence of polypi when the pus itself had not been traced to its origin.

Where the polypi were numerous, it was impossible to say from which sinus the pus was coming, but he held that where they were very numerous, and there was much pus, with a foul odor, the maxillary antrum was certainly involved, with or without the frontal sinus. In the pure frontal cases the polypi were less numerous, the granulations fewer, and the pus as a rule inodorous; in these cases also there was no pain. After the removal of the polypi, he deemed the routine passage of a probe and cannula into the frontal sinus necessary. Passing on to the question of treatment, he divided it into intra and extranasal. After inserting the cannula and irrigating the cavity with boric acid or weak formalin, he suggested filling the cavity with an emulsion of iodoform and glycerine, while the patient lay on a table or couch with the head hanging over the end. In this position, half to one drachm could be introduced, the amount depending upon the size of the cavity.

In one instance, in which over half an ounce of thick pus had been removed, this plan was attended with complete success, and he recommended it as worthy of trial.

In two other instances it had failed, and in one of these the sinus was found to be filled with polypi, the other had not yet been operated upon. He strongly deprecated all attempts to enlarge the opening into the sinus from the nose.

In considering the extranasal treatment, he referred to those patients who declined such an operation, and asked what risk they ran.

He himself was disposed to think that, so long as the drainage was free and pain absent, the risk was very slight, and that we are therefore not compelled to insist upon operation. He mentioned cases that he had watched for eight to ten years.

For opening the sinus, the incision through the eyebrow was, he thought, generally adopted. The bone, he thought, was best removed by means of a gouge. Having opened the cavity and found pus, the question was what more should be done. We might, he said, simply clean the cavity, remove the polypi, ascertain that the opening was free into the nose, and then close the wound; or, again, enlarge the channel into the nose, or place a drainage tube from the sinus into the nose; or, again, remove the greater part of the anterior wall and stuff the cavity; or, lastly, place a metal drain through the incision, so that the patient could irrigate the cavity daily.

Examples of all these methods of treatment were given, attended in some with success, in some with failure. On the whole, he was disposed to advocate free enlargement of the channel into the nose, with closure of the incision, in the severe cases with polypi. In the slighter cases, where no polypi were found, he thought it sufficient to clear the cavity and insert iodoform. After operation he advised intranasal irrigation for a week, or, where this was impossible, through a small opening maintained in the wound by a metal plug.

E. J. MOURE (Bordeaux) considered the diagnosis of frontal sinus empyema sometimes fairly easy; at other times it offers some difficulty. Although habitually associated with empyema of the antrum, it may occur alone, as he had several times observed.

Probable signs, he said, were unilateral discharge of pus, seen on rhinoscopic examination after the antrum has been thoroughly cleaned by irrigation; growths in the upper part of the infundibulum, in the direction of the nasofrontal canal, with dilatation of this canal, giving free access to the sinus; supraorbital pains, spontaneous or on pressure.

As certain signs he mentioned temporary or permanent swelling over the frontal sinus, or the presence of a fistula in that region; the flowing away of pus after irrigation, when that is possible in the frontal sinus; darkness on transillumination as compared with the opposite side. Absence of the sinus, fortunately rare, also gives rise to this sign.

The differential diagnosis between frontal empyema and that of the anterior ethmoidal cells may be difficult, but injection and transillumination will generally suffice to solve the difficulty; and it is worth remembering that ethmoidal growths are generally situated farther back than those coming from the frontal sinus.

The treatment, he said, varies somewhat, according as one has to deal with the simple mucous form or with cases complicated with growths or fistulae. In all cases it is necessary to ascertain the condition of the antrum, and if found diseased it must be treated before the frontal sinus. The treatment of the mucous form is purely medical, and will consist in inhalations; oil sprays, antiseptic or caustic; the air douche, simple or medicated, administered with Politzer's bag; irrigation through the naso-frontal canal, where this is possible, taking care to avoid the making of a false passage. The treatment of the suppurative forms varies according to the severity of the case.

In the milder forms the infundibulum and naso-frontal canal may be cleared of growths with the curette, and direct irrigation may be practiced when the conditions admit of it.

Diffenbach and Schaeffer's method of opening the sinus from the interior of the nose he considered dangerous. Finally, when more radical measures are required, one must have recourse to external operation by the methods of Kuhnt or Jansen, or, better still, Ogston-Luc. If the sinus be thoroughly curetted, and care be taken to avoid peripheral infection, the last-named operation he regarded as an almost ideal procedure for the radical cure of frontal empyema. If the sinus be exposed and rendered aseptic, and free communication be established with the nose, no other drainage tube is necessary, and washing-out should as far as possible be avoided, as it is liable to re-infect the curetted cavity. This operation is suitable also for cases in which there is bone disease with external fistula, or even intracranial fistula.

Of late years this method has yielded excellent results in his experience. None of his cases have relapsed, and the scar is so concealed by the eyebrow as to be unnoticed.

Method of Operating for Chronic Fronto-Ethmoidal Suppuration —RÖPKE (Solingen).

The author said that many of his patients are employed in steel and iron factories as grinders. The mortality amongst these at Solingen is very high; 80 per cent die at an early age from diseases of the organs of respiration.

Last year he and a colleague were directed by the government to examine 1,250 grinders, being 30 per cent of all the grinders working in Solingen and the neighborhood. They found only 12 per cent in good health; the others were almost all affected by diseases of the throat, nose or lungs. The result of this examination was published in a *Zeitschrift für Hygiene*. He mentioned these facts in order to show that he saw many cases of diseases of the antrum of Highmore, of the ethmoidal cells, and of the frontal sinus.

In most cases of chronic frontal empyema he believed the ethmoid to be also affected; and most authors have had regard to the ethmoid cells in their published methods of operation. During the last two years he had operated for chronic fronto-ethmoidal suppuration in the following manner: Exactly following the well-known method of Kuhnt, he makes the subperiosteal resection of the whole anterior wall of the frontal sinus, and scrapes out the diseased mucous membrane. The horizontal incision is two-thirds of the length of the supraorbital ridge, the vertical incision joins it at right angles; and the whole flap, including periosteum, having been reflected, the anterior wall of the sinus is chiselled away.

Then the meatus-fronto-nasalis is enlarged by breaking away a part of the inferior wall of the sinus, as far as it is necessary, to overlook the ethmoidal cells. By scraping out the diseased mucous membrane of the ethmoid he obtains a large communication between the frontal sinus and the nose.

The large cavity is stuffed with a strip of iodoform gauze, and the flaps are stitched, except at a spot for placing the strip through the skin wound on the inferior supraorbital ridge. If there is suppuration of both sinuses, the horizontal incision is made from one to the other side of the supraorbital ridge in the manner described; the vertical incision joins the horizontal at right angles in the middle. In these cases the anterior wall of both sinuses, the septum and the nasal process of the frontal bone, are chiselled away. Only through one side is a strip of gauze introduced; the other wound is closed.

Three days after the operation the strip is taken away and is not renewed, because the secretion of the cavity can flow off through the nose.

He had operated on twenty-five patients in this manner, thirteen of whom were affected on one side, twelve on both sides. All were cured of their affliction. The cases healed in from ten days to six weeks. Two patients, having had abnormally large cavities, were considerably disfigured; the other ones were not disfigured by the scars. Photographs of the results were shown.

He concluded by remarking that of course he did not operate till he had exhausted conservative methods. He believed that most chronic cases could only be cured by radical procedures.

(A more complete account of the author's method of operating upon the frontal sinus may be read in the *Archiv. f. Laryngologie*, viii Band, Heft II, and also in the report of the seventieth meeting of the *Deutsche Naturforscher und Aerzte-Gesellschaft*.)

On a Case of Chronic Empyema of the Frontal Sinus; Extension of the Infection to the opposite Side in spite of Three Successive Operations by the Ogston-Luc Method—Finally, Development of Diffuse Septic Osteitis of the Frontal Bone, and Death in Consequence of an Intracranial Infection in the Region of the Cortical Motor Centers of the Limbs—LUC (Paris).

The patient, a strong young man of twenty, with a good history, began to have purulent discharge from the nose at the end of 1893.

In February, 1897, Dr. Lermoyez performed the Ogston-Luc operation upon him for chronic fronto-maxillary suppuration. The antrum was opened through the alveolus; a frontal fistula remained.

In July, 1897, Dr. Lermoyez opened and scraped the antrum and repeated the Ogston-Luc operation. The frontal wound finally healed, but crusts and creamy pus were still visible in the middle meatus.

In August, 1898, he came to the author, who found that whilst the left antrum was cured, the left frontal sinus was still suppurating, and the disease had extended to the right antrum and frontal sinus.

On November 6, 1898, the patient consented to operation. The antrum was found but slightly diseased, probably acting as a reservoir. Both frontal sinuses were freely exposed by a vertical and horizontal incision, and a central opening of about two inches diameter was made in the bone. The right sinus was full of creamy pus and granulations; the left was narrowed by a kind of hyperostosis, and full of fibrous tissue, which contained few fungous elements and no pus, the naso-frontal duct being occluded on that side. Both frontal sinuses and such of the ethmoidal cells as were accessible were curetted, and the left naso-frontal duct was opened up. No drain was used. The wound was closed and a compress bandage applied. The external wounds healed perfectly, but pus and crusts continued to form in the left nasal fossa, and there was also a little pus in the right side.

December 26: Two days after an unsuccessful attempt to wash out the frontal sinus by means of a long curved probe introduced through the nostril, an abscess formed over the left eye. This was opened and drained. The wound healed, but the parts continued boggy, and pressure on the forehead caused pus to flow from the nose. A compressing bandage was therefore applied but the subcutaneous suppuration extended upwards, and on January 18th a fourth operation was undertaken in order to stop the infective process.

The whole of the frontal bone was exposed by incisions; its surface was rugous and covered with unhealthy granulations. The remains of the anterior walls of the sinuses were removed, and all diseased areas thoroughly curetted and purified with chloride of zinc. The upper part of the wound was sutured and the cavity packed with gauze. On January 24th, about a week after this operation, a subperiosteal abscess developed at some little distance from, and quite independently of, the frontal wound. This was at once opened and curetted.

On February 8th a second subperiosteal abscess formed. It was at once treated.

On February 17th a third subperiosteal abscess was detected, higher up in the hairy region of the scalp.

On March 8th the first subperiosteal abscess was healed, the second healing and the third discharging. All the lower part of the great wound was suppurating freely, the bone was still denuded, and the patient's general condition was beginning to decline. About this time the patient began to show signs of greatly increased nervous excitability, and a week or so later he complained of rigidity of the nape of the neck.

On March 12th there was distinct loss of power in the left leg, with a tendency to jerking and tremor. The knee-jerk was exaggerated. The temperature rose to 102° to 103° . The paresis increased and affected the lumbar muscles. It was concluded that the infection had reached the internal surface of the bone, and that pus was forming either on the external or internal surface of the dura, close to the cortical motor center for the limbs. To deal with this condition a fifth operation was undertaken on March 13th.

The whole of the frontal and right parietal bones were exposed, and part of the left parietal bone. The surface of the bones looked rough and uneven, as if it had been corroded by an acid. After curetting and disinfecting the diseased surfaces, the skull was opened, a rectangular piece of bone (8 cm. by 4 cm.) being removed over the suspected areas. Two purulent deposits were found on the dura, one over the upper end of the right ascending frontal and parietal convolutions, the other on the left side behind the motor region. The pus was removed and the dura mater curetted and touched with chloride of zinc. The dura mater was not opened, as the lesions found were considered sufficient to account for the symptoms. All the diseased surfaces were washed with sublimate, touched with strong chloride of zinc, and dusted with iodoform. Temperature, 104° . The patient's mental condition was one of considerable ex-

citement. He lay in a sort of lucid delirium, expressing his thoughts and feelings in improvised songs. He died two days after the operation, with a temperature of 106° . No post-mortem obtainable.

In reviewing the case, the author thought it was a mistake not to have laid open at once the second subcutaneous abscess (which appeared under the skin of the forehead), but to have contented himself with the application of a compressing bandage to favor the drainage which was taking place into the nose. The infection extended, and he was obliged after all to operate. The patient, however, was very averse to further interference, having already endured three severe operations. From this time the frontal bone became affected with a diffuse septic osteitis, as was shown by the series of three sub-periosteal abscesses, which were quite independent of the great primary frontal abscess. The fourth abscess developing on the inner surface of the bone caused the crural monoplegia, etc.

The continued progress of the nervous symptoms proved that in the last operation the operator did not go deep enough, as there was evidently a purulent deposit either on the pia mater or in the motor centers themselves. He had previously determined to open the dura at a subsequent operation if the nervous symptoms did not improve in twenty-four hours; but the rapid progress of the case made this impossible. He considered that he and his colleagues were fully justified in postponing the opening of the dura mater till it became evident that it was really necessary. Unfortunately it was then too late.

A Fatal Case of Chronic Empyema of the Frontal Sinus—HERBERT TILLEY (London).

A young woman of twenty-two suffered from almost complete nasal obstruction due to polypi, associated with a profuse purulent discharge from the anterior and posterior nares. As the antra were found on puncture to be almost free from pus, it was concluded that the frontal sinuses and ethmoidal cells were diseased. There was no headache.

The right sinus was opened through an incision under the inner half of the right eyebrow, and as the septum between the sinuses was found to be perforated, it was possible to curette both sinuses through the one opening. Both were full of pus and polypoid granulations.

The posterior wall of the right sinus appeared to consist of a healthy and a diseased part, separated by a line of demarcation. As the right naso-frontal duct was very narrow it was enlarged, but Dr.

Tilley wished he had enlarged it even more freely. A tube was introduced, and the external wound closed; the sinus was washed out three times a day with a dilute antiseptic.

Ten days after this operation suppuration occurred and the wound broke down, so the right sinus was re-opened, the passage into the nose was much enlarged, and the radical operation was at the same time performed on the left sinus. Tubes were inserted, the wounds were closed, and the syringing with antiseptics three or four times a day was carried out as before. About a week after this second operation a subperiosteal abscess formed over the lower median part of the forehead. It was opened at once. Four days later a similar abscess appeared over the left parietal eminence, and when it was opened bare bone was felt.

A succession of these abscesses continued to form at different points of the frontal and parietal bones, till at length the scalp covering them was undermined in every direction, and the outer table of the skull became necrotic in large patches, some of which separated and came away.

As a last resort a transverse incision was made completely across the scalp from ear to ear beyond the edematous soft parts, but it was found impossible to check the septic phlebitis of the diploic veins, and after nine months' illness, curiously free from pain (with the exception of about ten days' severe neuralgia), the patient died from pneumonic symptoms associated with those of chronic sepsis.

Unilateral optic neuritis was noted latterly. Pus from the scalp contained virulent streptococci.

Post-mortem.—Extensive necrosis of the vault; inner table of frontal bone healthy.

Dura mater adherent to vault, which it practically held together, but membrane otherwise normal. Longitudinal sinus healthy. Sigmoid grooves full of pus. Numerous multiple abscesses scattered through the cerebrum. Cerebellum and medulla healthy.

Petrous bone necrosed; subdural abscess below apex of temporo-sphenoidal lobe on both sides. Pus round cavernous sinus, and abscess of hypophysis.

A large abscess round left Eustachian tube and carotid artery extending down into a large postero-lateral pharyngeal abscess.

Evidently the pus got underneath the dura when the process reached the petro-squamosal fissure, and thus the tegmen tympani and sigmoid grooves became affected, and necrosis of the pars petrosa followed. Left mastoid antrum and sigmoid groove communicated by a large hiatus. There was septic pneumonia and pulmonary abscess.

Dr. Tilley recorded the case as showing the risks which might occur in opening the frontal sinus. He referred to Dr. Luc's case, and also to another which he had lately seen under the care of a well-known surgeon, as showing that such cases might occur in the most skillful and experienced hands. Possibly too vigorous curetting might open some of the diploic spaces, which afterwards became septic. In the presence of a septic osteo-myelitis only the most radical procedures offered any chance of success:

CORRESPONDENCE.

Editor THE LARYNGOSCOPE:

In my paper, "The Offending Middle Turbinal," which appeared in the September issue of *THE LARYNGOSCOPE*, I carelessly failed to give proper credit to Dr. Wm. L. Ballenger, of Chicago, when I alluded to "thickening of the membrane lining the air cells, as a result of chronic catarrhal bronchitis, which makes more difficult the osmotic purification and oxygenation of the blood." To Dr. Ballenger, I believe, is due the credit of having first noted and emphasized this idea. His paper appeared in *The Alkaloidal Clinic* for April, 1897.

EDWIN PYNCHON, M.D.

September 27, 1899.

ABSTRACTS AND BIBLIOGRAPHY.

Arranged and Edited by

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with the collaboration of the

EDITORIAL STAFF.

It is our purpose to furnish in this Department a complete and reliable review of the world's current literature of Rhinology, Laryngology and Otology.
Authors noting an omission of their papers will confer a favor by informing the Editor.

I. NOSE.

Bleeding from the Lachrymal Duct—CHIARI—*Wiener Klin. Wochenschr.*, No. 28, 1899.

The author says that he has seen two cases where the nostril had been plugged with Belloc's canula on account of epistaxis, where hemorrhage occurred through the lachrymal duct. The intra-nasal blood pressure being high, and the blood being unable to escape either in the front or back, it had finally forced its way out through the duct. In neither of the cases did the hemorrhage prove important.

VITTUM.

A Tooth in the Nasal Cavity—HOELL TYLER—*South. Cal. Pract.*, Vol. xiv, No. 6, June, 1899.

The patient, a woman of thirty years, sought treatment for nasal catarrh. She had chronic rhinitis with a stinking discharge from the right nostril, chronic pharyngitis and was anemic. On cleansing the nasal cavity the author discovered what he mistook for a foreign body, about one inch from the anterior nasal orifice, and was surprised to find that he could make no impression upon it with forceps or strong steel hooks. Both ends being imbedded, he determined to cut it in two by means of the dental drill and extract the fragments. The jarring of the drill loosened it somewhat and it was extracted with the steel hook.

It grew from the nasal septum, in which it was imbedded to the depth of three-sixteenths of an inch with the root turned downward. The root did not penetrate the roof of the mouth, and it was not connected with the alveolar border nor with any cyst. It resembles a canine tooth. The wound in the nose healed readily, and the patient recovered from the rhinitis and pharyngitis under ordinary treatment.

EATON.

A Case of Ivory Exostosis of the Left Nostril and Orbit—CHIARI—*Wiener Klin. Wochenschr.*, No. 28, 1899.

At a meeting of the Vienna Laryngological Society, held June 8, the author reported a case of this somewhat rare affection. The patient, an eighteen-year-old girl, was in poor physical condition.

About two years ago she noticed that the left nostril would occasionally become occluded. This has gradually increased until for the past three weeks she has been unable to breathe through it.

For two months she has noticed that the left half of the nose was becoming more prominent, and for a week past pressure on the internal angle of the orbit has been painful.

In the left nostril, in the vicinity of the middle turbinal, was seen a smooth tumor covered with thin mucous membrane and about the size of a cherry. It sprang from the outer wall, and, pushing the septum over to the right, completely occluded the nostril. Between the tumor and the septum was a small whitish body, about the size of a pea, which evidently belonged to the middle turbinal body. The probe showed the tumor to be hard and smooth. All attempts to penetrate it were fruitless. On the inner wall of the left orbit was found a similar tumor about the size of a cherry also. This was pushing the bulbus oculi to the left. Inasmuch as these ivory-like tumors generally spring from the base of the skull, and because the patient would not consent to an extensive operation, it was determined to attempt the removal of the nasal portion of the growth only.

After several futile attempts, and with a good deal of difficulty, a piece about half the size of a cherry was finally sawed off. During the next few days fever came on, and an edema of the left orbit which finally extended to the right. Fluctuation appeared above the lachrymal sac. An incision gave vent to considerable pus. The edema gradually disappeared. The patient is still under observation. The orbital tumor is increasing and the nasal portion has again nearly occluded the nostril. This case seems to demonstrate the malignancy of the ivory exostoses. VITUM.

Hay Fever—J. C. CONNELL—*Kingston Medical Quarterly*, Vol. iii, No. 4.

The writer finds three distinct factors present in his cases, viz.: a predisposing neurotic condition, diminished vaso-motor control with nasal hyperemia; and an exciting agent which varies with the individual and locality. The first named is treated with strychnia or valerianate of zinc. Any nasal focus of irritation is removed. The acute attack is treated internally with gr. viii of ammonol bis die, and locally with McKesson Robbins' stearate of zinc with aristol as a dusting powder in the nose. GIBB WISHART.

Hay Fever—CAROLUS M. COBB, Lynn, Mass.

A résumé of the theory and therapy of hay fever investigations up to date.

Advances the fact that very few ruralists have hay fever as indicative that the general cause of the disease is from some element or elements of city life. This can be neither dust, nor pollen, but likely the nervous wear and tear accompanying urban life. Bouchard found the toxicity of the urine in the city greatly in excess of that

in the country after a hard day's work. Thinks the breathing of excess of pure air, and the possibility that muscular exertion does not produce as much toxic material as brain work may account for the freedom of laboring men from hay fever. Coal gas and dry, heated homes influence some. The nervous system is the excitant. Denies that there can be no hay fever without intra-nasal disease. Of 42 cases treated, 22 had nasal disease as a prominent factor, 10 as a contributing cause, and in 10 there was no nasal disease at all. Dismisses the theory that the disease is caused by sepsis, as he has never seen a case the result of ethmoiditis or purulent rhinitis. Has treated cases where ethmoiditis accompanied hypertrophy, and reduction of the latter effected a cure while the ethmoiditis persisted. Naso-pharyngeal disease does not produce hay fever.

Believes hay fever to belong to the class of diseases of which spinal irritation is an example, where there is an unstable condition of the nervous system and any function of the body may be exaggerated. Notes a special sympathy between the posterior third of the nose and the bronchial mucous membrane, and in asthma, dependent on a nasal lesion, has invariably found that the sensitive region was the posterior third.

Another proof of this is in the location of the lesion in cases that change from typical hay fever to perennial asthma. This change never occurs if there is hypertrophy of the anterior ends of the lower turbinate, but is seen when the neurotic is accentuated. An analysis of many cases convinces that when a nasal lesion produces asthma it is located further back than the lesion of simple hay fever. With Bosworth, doubts the influence of pollen on the bronchial mucous membrane as a cause of asthma.

Of 42 cases treated, has cured 30, relieved 10 and 2 unbenefited. Believes 95 per cent can be relieved, but the nervous element makes a prognosis so uncertain that we should not promise more than relief. Treatment should be constitutional, local and palliative for the attack. Exercise and frugality in living, nerve tonics, specially zinc phosphid, quinine and arsenic. Shower baths and friction. Hyoscyamus and suprarenal extract are good to control vaso-motor dilatation. Too much intra-nasal surgery. Only conditions to consider in the nose are hypertrophy of the anterior ends of the turbinates, polypi, and possibly the thickened condition of the tissues covering the convex side of the septum. Other conditions are accidental and do not produce hay fever.

Believes the treatment of the old observers was not altogether unreliable. Has nearly always succeeded in stopping an attack that was established, by the method of Sir Andrew Clark — R. Hydrarg Bichlorid, gr. i, quinine muriate, gr. xxx, glycer. acid carbolic B. P. ounce i. This usually causes an abatement of symptoms in 24 hours. Should this not benefit in several days applies a 15 per cent solution of chromic acid to lower and middle turbinates, under cocaine, but does not go far back. Such an application cures symptoms of cold in head for 18 hours, but often has a magical effect, the patient being free from the sensations of hay

fever during this time. Thinks the result due to the decided impression made on the nervous system by the nasal irritation, and that it is a form of suggestion. This explains the good results of those who employ asepsis.

EWING.

Nasal Lupus—Dr. HOLLÄNDER—*Berliner Klin. Wochenschr.*—June 12, 1899.

The disease is divided by the author into two groups. In the first he includes the severer forms of real skin lupus. It is characterized by its extensive attack, sometimes involving a large part of the face, scalp and neck. In these cases the nose may have been affected for ten or twenty years and yet no particular destruction of the organ has taken place, the shape and profile are retained, and only occasionally shall we see a general enlargement of the organ. The glands are not usually involved, and there is only a slight tendency to involvement of the upper air passages and the lungs.

The second group presents an entirely different picture. Here the process has often led to marked destruction of the nose; its course is comparatively rapid. At first the trouble is confined to the nose; later there appears a crop of lupus nodules in the vicinity of the organ. The nasal mucous membranes are always involved. Perforation of the septum is often present. Lupous involvement of the soft palate, the pharyngeal wall, the epiglottis and the whole aditus ad laryngem. There is a peculiar tendency to invade the other mucous membranes of the face, the lips, the gums, the hard palate and the conjunctiva. The glands are usually involved, and there is a strong tendency to a descending lupus of the air passages.

The second group, in all likelihood, consists of cases where the nasal mucous membrane has been primarily involved.

The author favors his own method of treatment by a stream of hot air (300°—400°). At this temperature the lupous tissue becomes necrotic, and the tubercle bacilli are destroyed. When the hot air is turned on to parts, the skin instantly becomes absolutely ischaemic. The lupous tissue cannot participate in this active contraction of the vessels on account of the small number of vessels, and the absence of contractile tissue; it therefore seems to stand out prominently in contrast to the contracted, and shrunken skin which surrounds it. This method of treatment is especially adapted to nasal lupus, and where the air stream cannot be turned directly upon the lesion, the author has no hesitation in splitting up the nose, burning out the lupous patches, and then uniting the nose by suture.

The article is accompanied by numerous, and excellent illustrations which certainly seem to show some remarkably successful results.

VITTUM.

II. MOUTH AND NASO-PHARYNX.

Chronic Lacunar Tonsillitis—CHAS. E. CLARK—*Kans. City Med. Record*, Vol. xvi, No. 7, July, 1899.

Attention is called in this paper to the crudeness displayed in the classification of chronic inflammatory affections of the faucial tonsil. It also recalls that Roe emphasized the importance of a careful study of chronic lacunar tonsillitis, describing "diseased tonsils unattended by hypertrophy." The diagnosis is to be made by spraying a weak solution of cocaine into the pharynx, then with depressor, retractors, small currettes, probes, etc., each portion of the tonsillar space should be carefully explored as well as each crypt. The practitioner is then apt to find himself humiliated in having overlooked an immense follicle filled with fetid secretion. A case is related in which repeated applications of the galvano-cautery had been made to tonsillar crypts without relief to pain and general septic infection. Examination discovered enlarged, deep crypts or sinuses. The tonsils were excised with complete relief. Clark deduces that: 1. Chronic lacunar tonsillitis is a disease which should be studied and treated individually, and not under the general term of hypertrophy of the tonsils. 2. It is capable of acting as a center of infection in the production of constitutional sepsis. 3. A diagnosis should be made with the utmost precision. 4. The sinuses should be treated exactly as a sinus in any other locality, viz., by excision. EATON.

Rheumatic Tonsillitis—ABRAHAM—*Memphis Med. Monthly*, March, 1899.

The more common varieties of rheumatic sore throat fall into two main categories—faucial erythema and tonsillitis proper. The former is more common in adults; rheumatic tonsillitis, in children, in whom it usually assumes the follicular type, quinsy being more frequent in older subjects. Faucial erythema is an initial manifestation of acute rheumatism; tonsillitis may be the actual primary lesion. Many cases are now definitely on record in which endocarditis has followed a non-scarlatinal tonsillitis unaccompanied by joint pains. In numerous other instances the tonsillitis immediately preceded an attack of arthritis or chorea. The presence of the same micro-organisms in the tonsils, joints, blood and urine is evidence in favor of the participation of pyogenic cocci in the etiology of rheumatism. SCHEPPEGRELL.

Congenital Insufficiency of the Soft Palate—GUTZMANN—*Münchener Med. Wochenschr.*, July 18, 1899.

Careful investigation has led the author to the view that nasal speech is often the result of a congenital insufficiency of the soft palate. The latter is too short, and during speech cannot apply itself closely to the eminence of Passavant. Very good results were obtained by massage of the soft palate which resulted in a lengthening of that organ. VITTM.

Acute Pharyngitis—G. T. SWAIL—*Southwestern Med. Record*, February, 1899.

A review of the symptoms and treatment. SCHEPPEGRELL.

Late Consecutive Oro-Pharyngeal Syphilis—L. S. SOMERS—*Internat. Med. Mag.*, Vol. viii, No. 7, July, 1899.

Somers remarks that the division of syphilitic manifestations into primary, secondary and tertiary lesions, while of value in the study of the effects generally, is not distinctly marked in the oro-pharynx, the chronologic order in which the changes take place being here very irregular as compared with the dermal alternations.

The posterior pharyngeal wall is singularly exempt. Gumma, while appearing on the tongue, is more frequent on the tonsil, and is comparatively rare in other portions of this region.

The mucous plaque ("milk spot") may be seen in either early or late consecutive syphilis, and, when observed early in the course of the affection, may immediately follow the initial lesion, before any dermal manifestations have appeared. Notable also is the obstinate character of the patch, rarely, despite the most energetic medication, healing in less than two months, and more frequently appearing at intervals over a period of from four to six months or even longer.

Later in the course of the disease gumma of the tongue occurs in its non-ulcerative form, and its onset is so insidious that often the patient is unaware of their presence until ulceration results. Unlike mucous patch, gumma is not as readily diagnosed, and the history, etc., may be necessary.

The main features of the subject are illustrated by cases in the author's practice. EATON.

III. ACCESSORY SINUSES.

Diseases of the Cavities of the Nose an Important Factor in Producing Affections of the Eyes—ALBERT E. BULSON—*The Physician and Surgeon*, July, 1899.

The writer divides the cases into two classes:

(1) Pathologic conditions of the eye resulting from the passage of morbid material from the nose through the nasal duct or immediate tissue of the eye.

(2) Pathologic condition of the eye dependent on hypertrophies, deformities, or mechanical abnormalities of the nose.

The symptoms arising under the first condition are pointed out, and the necessity for a careful examination of the nasal spaces, particularly in the cases among school children, is urged.

The history of a case, resulting from an incisor tooth, driven by the kick of a horse into the cul-de-sac around the inferior turbinal, shows the conditions that may arise under the second classification.

DETWILER.

IV. LARYNX AND TRACHEA.

A Contribution to the Study of Laryngeal Gumma—H. CORDES—*Dtsche Med. Wochenschr.*, June 22, 1899.

Description of a case of gumma of the right vocal cord, presenting great difficulty in the diagnosis as there was no history of infection, and absolutely no other indication of syphilis to be found.

Attention is particularly called to the fact that instead of presenting an ulcerating surface, the whole tumor seemed to be covered with a firm, whitish, fibrous deposit. This the author thinks may have resulted from the situation of the gumma. VITTUM.

A Case of Laryngeal Tuberculosis—R. MCKINNEY—*Memphis Med. Monthly*, January, 1899.

An interesting feature of this case is that the tubercular affection of the larynx instead of being secondary to a pulmonary affection, as is usually the case, was followed by infection of the lymphatics of the axillary and intra-clavicular regions.

SCHEPPEGRELL.

Foreign Bodies in the Air Passages, with Report of a Case—W.D. SHIELDS—*West. Med. Rev.*, Vol. iv, No. 8, August, 1899.

The author's case was that of a boy of four years. On the previous afternoon he came into the house with something apparently fastened in his mouth, and on opening it, his mother saw a stick about the size of a lead pencil and more than an inch long go down his throat with a gasp. Patient was suffering from intense dyspnea, spasmodic cough, anxious and painful expression, at times clawing at his throat. These symptoms, with rales in the right lung, increased pulse-rate, and elevated temperature, continued for two weeks.

When first seen by the author temperature ranged from 100° in the morning to 103° in the evening; pulse, 95 to 120; increased respiration; muco-purulent sputum, occasionally tinged with blood; could not lie down comfortably. No aphonia.

The diagnosis was traumatic unilateral bronchitis from a foreign body in the right bronchus.

Some weeks after, Dr. A. F. Jonas, of Omaha, located the foreign body in the right bronchus.

The fluoroscope indicated a darkened surface, the size of a half-dollar, in this region. Under chloroform, and then ether, attempts were made to remove the body, but the child came so near dying from the anesthetic that he was sent home in hopes that the foreign body might, in time, be coughed up. The case lingered on, greatly depressing the patient's vitality, he losing twenty-two pounds in flesh. Finally the piece of wood was coughed up, and was found to be one and three-fourths inch long, and about the size of a small lead pencil. This was three months and three days after it entered the windpipe. Recovery was rapid and complete.

EATON.

Hysterical Aphonia Lasting for Eleven Years—LENNOX BROWNE—*Jour. L., R. et O.*, June, 1899.

This condition occurred in a female, after a severe mental shock. The individual was mute for three or four years. She then began to whisper, and in the past two years developed a deep, rough voice, which was produced by vibration of the false cords, as seen by the laryngoscope. Different methods of treatment were tried without effect. After exposure to great excitement the voice suddenly returned to normal, and has so remained.

LEDERMAN.

Statistics as to the Lateral Correspondence Between Laryngeal and Pulmonary Tuberculosis—CARL MAGENAU—*Archiv für**Laryngol.*, Band ix, Heft 2, 1899.

These statistics, embracing 400 cases of laryngo-pulmonary tuberculosis, were compiled for the purpose of comparing them with those of Krieg. The latter author combats the view that infection from the lungs to the larynx occurs by way of respiration or sputum, and contends that the path traveled by the germs is through the blood and lymph circulation. His statistics show that in cases of pure unilateral involvement of both lung and larynx, the same side is affected in 91.6 per cent.

The present statistics, however, give a much smaller (40) per cent under like conditions. The statistics were very carefully prepared and all doubtful cases thrown out. His conclusion is, therefore, that while Krieg's theory may be correct, it is not proven so by any statistical evidence. He very sensibly concludes that the evidence of the bacilli being carried from the lung to the larynx by way of the blood and lymph will never rest upon statistics alone, but that we must look for the proof in the future investigations of physiology, anatomy and pathological anatomy.

VITTUM.

V. EAR.

A Note upon Aural Vertigo (Meniere's Disease) and the Organ of Equilibration—L. HARRISON METTLER, M.D., Chicago—*Medicine*, August, 1899.

The nucleus of Deiters is selected by the author to be the real center of equilibrium. It is situated in the outer angle of the floor of the fourth ventricle, and in the restiform body near the ventral portion of the cerebellum. It is the terminus of the vestibular fibers of the auditory nerve. It has connection with the nuclei of the third, sixth and probably fourth cranial nerves. Sensory impressions are brought to it from remote parts of the general muscular system, and the viscera. The belief long held that it was purely sensory in function, subserving the sense of hearing, has been supplanted by the present knowledge that it is the meeting-place of an immense number of special sensory and motor impulses. Hence a vertigo may be produced by an irritation of any of its ramifications.

STEIN.

Ossification of the External Ear—WASSMUND—*Deutsche Med. Wochenschr.*, July 6, 1899.

The author reports a case of this rare affection which, together with the five previously reported, makes a total of six on record. The trouble seems to occur as a result of some special irritation and relaxation of the vessels. In the case under consideration it followed a frostbite. The ossification involved mainly the middle part of the auricle, and gave rise to no inconvenience unless the patient lay for some time with the affected ear resting on a hard object.

VITTUM.

A Report of Actual Cases Demonstrating the Relief, by Modern Methods, of Patients Hopelessly Afflicted for Many Years with Deafness from Catarrh, Running Ears, Etc.—ROBERT BARCLAY—*Med. Rev.*, Vol. xl, No. 2, July, 1899.

The author, while "aware that many otologists appear to have given up the operation of ossiculectomy upon the middle-ear structures in deafness from catarrh, disappointed in their results, others—among them, myself—finds that the mere relief of tension, always abnormal in these cases, is sufficient to justify the operation, inasmuch as it relieves the labyrinth of inevitable still further secondary invasion and preserves the integrity of function of the auditory nerve, not only in this ear, but in its fellow of the opposite side." In cases not presumably or manifestly incurable, he claims that as regards the advantages of increased mobility of the conducting mechanism experience shows that the operation invariably improves the hearing. He cites ten of his own cases to prove his point.

[This article is in parts vague, and fails "to demonstrate to your satisfaction" that the operation will do what the author claims, since he is reticent as to the exact conditions of the ears treated, and as to his methods.]

EATON.

The Diagnosis of Septic Diseases of the Brain and Its Membranes from the Standpoint of the Oculist and Aurist—EUGENE SMITH—*The Physician and Surgeon*, August, 1899.

The writer, after calling attention to various symptoms of cerebral disease manifested in the eye, and urging thorough examination of this organ, says: It is in the middle ear and mastoid antrum where most of the pathogenic processes generate, which afterwards spread intracranially and affect the brain and its membranes. An extensive inflammatory disease of the middle ear may exist without any discharge from the external ear and without perforation of the drum membrane. Chronic purulent diseases of the middle ear, however, are the ones most prone to cause extension of the pathogenic process to the brain cavity.

A suppurative otitis media with erosion of the tegmen tympani is often, if not always, accompanied by a meningitis sufficient to produce an optic neuritis. Again, if the inflammation in the tympanic cavity were sufficient to produce an effect on the carotid

plexus of the sympathetic, it might easily cause irritation in the perivascular sheaths of the carotid venous plexus as well as in those veins that pass directly from the tympanic cavity into the membranes. Thromboses of the cranial sinuses, particularly of the lateral sinus, are not infrequent as a result of middle-ear disease.

DETWILER.

A Case of Middle-Ear Disease Simulating Meniere's Disease—

WM. L. BALLENGER—*Journ. Am. Med. Assn.*, August 12, 1899.

The case reported is that of a man, forty-one years old, who has the usual symptoms of Meniere's disease, except that the attacks are temporary, and recurring. They usually last from two weeks to a few months. Inflation of the middle ear improves the hearing and relieves the pain in the head, the nausea and the dizziness.

Examination of the ears shows retraction of the drum membranes, especially of the left. Bone conduction absent in left ear. Inflation brings bone conduction almost up to normal.

The doctor concludes that the symptoms are caused by the extreme retraction of the drum membrane, driving the foot-plate of the stapes into the oval window, thereby increasing the intra-labyrinthine pressure.

ANDREWS.

The Treatment of Diseases of the Ear—W. F. STRANGWAYS—*The Physician and Surgeon*, August, 1899.

The writer claims that harm is often done by the routine use of the syringe for cleansing the ears. His method of cleansing the external and middle ear is by wiping with absorbent cotton applied on slender, flexible applicators. By this means, with the occasional use of Auel's lachrymal syringe, having a long, slender end piece, and with air inflation, all parts of the middle ear may be reached through the ordinary perforation.

He considers peroxide of hydrogen of little value in this line of work, but speaks highly of tincture of iodine. This drug aborts furuncles, allays itching and banishes chronic and sub-acute inflammatory troubles if there is no discharge from the middle ear.

DETWILER.

VII. INSTRUMENTS AND THERAPY.

A Modified Siegel's Pneumatic Aural Speculum—CHARLES H.

BURNETT—*Journal Am. Med. Assn.*, June 3, 1899.

The instrument is of metal, highly polished inside and out. It closely resembles the hard rubber Siegel's instrument. The small end is made oval to more accurately fit the external auditory canal. The outside of this end widens rapidly for a distance of one centimeter, thus insuring a fit in any adult meatus without the addition of rubber packing or of replacing with a larger or smaller speculum as is necessary in the use of the original instrument.

ANDREWS.

Argyria—M. MENZEL—*Wiener Klin. Wochenschr.*, No. 20, 1899.

Report of a case which resulted from frequently painting the pharynx and larynx with a 5 per cent to 10 per cent solution of nitrate of silver during a period of nine and one-half years. Aside from the local discoloration there was an argyria of the face and neck and of the back of the hands—those portions of the skin most exposed to light. This patient's color varied somewhat, according as the skin became congested or anemic. The darker color corresponded to a flushed face, while a steel-gray color indicated paleness. This patient, singularly enough, showed abstinence symptoms when a considerable time was allowed to pass without his coming in contact with the silver solution. He was unfit for work, irritable, restless and sleepless. These symptoms appeared when he had been two or three weeks without treatment, but disappeared at once when the pharynx was painted with the silver solution. The author is at a loss to know whether there was really an addiction, such as takes place with morphia, arsenic, etc., or whether the symptoms resulted from some sort of auto-suggestion.

The author thinks that if the person is kept from all contact with silver salts for a long time, the argyria will very slowly disappear. Iodide of potash has been recommended in this trouble, but it is doubtful whether any results have been obtained. VITUM.

A Further Contribution to the Therapeutics of Heroin—A. HOLT-KAMP—*Monograph*.

The author employed heroin in over 180 cases and pronounces a fairly positive opinion regarding the pharmacodynamic properties of this preparation. He states "this remedy has completely fulfilled expectations in all cases in which it was indicated, and has never manifested unpleasant or injurious effects. I have made use of heroin in 122 cases of acute and chronic laryngitis and bronchitis, in 12 cases of pleuritis with extremely distressing, irritating cough and intense chest pains; in 5 cases of whooping cough, in 7 cases of sciatica and muscular rheumatisms in 13 cases of cardialgia, in 23 cases of violent pains in the gastro-intestinal form of influenza, and in 5 cases of general nervousness and sleeplessness. The clinical material consisted of persons of both sexes, of every age and constitution, and in all but a few cases heroin was successful.

In acute laryngitis and bronchitis of adults I prescribed 3 times daily 0.005 gm., while in severe cases in which the cough disturbed the night's rest, 0.005 were given in the forenoon and afternoon, and 0.01 at about 10 o'clock in the evening, after which a refreshing sleep usually ensued. The sleep produced was always quiet, without the least disturbance on the following morning. I have employed heroin in 5 cases of phthisis with fever and marked cough, giving 2 doses of 0.005 gm. within 2 hours in the evening, with the result that sleep always occurred with a reduction of temperature of 0.6–1.3 degrees and diminution of the night-sweats.

Heroin acted very promptly in 10 cases of dry pleurisy, but in one case of undoubted tuberculous character morphine acted more efficiently. In 5 children, ranging in age from two to seven years, I made a trial of this preparation for the purpose of arresting the most violent paroxysms of whooping cough. According to the age, I prescribed it in doses of 0.0005 to 0.002 gm. 3 times daily, and in 4 cases was gratified to note, after 2 days, a considerable amelioration of the attacks, both as regards frequency and intensity. The children were easily affected by heroin, and hence it is necessary to be careful in the doses. Although this preparation is no direct curative agent against whooping cough, the prompt relief of the attacks in frequency and intensity is certainly worthy of attention, and it would be desirable to continue the experiment with heroin or its use in connection with other medicaments."

BOOK REVIEWS.

Diseases of the Ear. By ALBERT H. BUCK, M.D., Clinical Professor of the Diseases of the Ear, College of Physicians and Surgeons, Medical Department of Columbia University, New York; Consulting Aural Surgeon, New York Eye and Ear Infirmary, and the Presbyterian Hospital. Third Revised Edition. Wm. Wood & Co., New York.

Buck's well-known Manual has developed into an elaborate "Treatise on the Diseases of the Ear," otherwise it would be a work of supererogation for us to review a book so well known to all otologists. In several revised editions Dr. Buck has sought to keep his Manual abreast of the times, but so great have been the strides of otology in recent years that to bring within its scope present knowledge has necessitated its almost complete re-writing. It has not been long since the importance of the nasal passages and rhinopharynx to the middle ear was recognized, and the field of otology much enlarged from their acquisition. A general revision of modern otological literature became necessary. Now, that the aural practitioner has become an aural surgeon by taking for his province certain affections of the brain, meninges and sinus, adding to our knowledge of them, no work on otology that pretends to tell it all can slight this new, and to him most interesting and important department of his specialty. The time has gone when aural specialists, anxious to produce a respectable looking volume on the ear, must resort to thick paper, short lines and large letters in order that it may not be possible to pigeonhole their "complete treatise" in the ordinary office desk. Dr. Buck's book has been enlarged in length, width and bulk. The earlier chapters have been re-arranged, and new matter inserted, and several new chapters, dealing specifically and elaborately with intracranial diseases affecting the auditory apparatus, added. The editions bring the work thoroughly up to date, and as it comes to us in this new edition we consider it one of the very best American productions on the subject. F. C. E.

A Manual of Otology. By GORHAM BACON, A.M., M.D., Professor of Otology in Cornell University Medical College, New York. With an Introductory Chapter by CLARENCE J. BLAKE, M.D., Professor of Otology in the Harvard Medical School, Boston, Mass. In one handsome 12mo. volume of 400 pages, with 109 engravings and a colored plate. Cloth, \$2.00, net.

A text book on Anatomy is in every medico's library, be he student or practitioner. This being true we are unable to appreciate the necessity for including the anatomy of the ear in a Manual of Otology the size of Dr. Bacon's. Otology is a study for advanced students, and practitioners who have been through anatomy, and if in their reading they happen to find themselves in the dark upon any particular structure enlightenment is always at hand. The otological science of the specialist cannot by any perfection of condensation be compressed within the space Dr. Bacon has allotted to himself, and as something had to be left out a wiser discrimination would have eliminated anatomy which of necessity would be less complete than that in a treatise dealing with the entire subject.

Nevertheless, as a text book for the over-crammed student and as a reference work for the busy general practitioner, who cannot hope to know it all, the Manual before us conforms more nearly to the proper size than any work we know. All others are too large or too small, they contain much too much or too little. The author, on the whole, has shown a wise discrimination in his divisions of space, and the emphasis laid upon the various affections. The chapter on the important subject of mastoid disease is particularly clear, and full, as is also the newer pathology of the sinus and meninges. The colored plate representing "Abscess of the Cerebellum Secondary to Chronic Suppurative Otitis Media" is beautifully executed.

F. C. E.

